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FINAL
INTERIM REMEDIAL ACTION REPORT FOR
UST SITE 1441

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MARINE CORPS BASE
CAMP PENDLETON, CALIFORNIA

DCN: SES-TECH-06-0072

Prepared by:

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ABBREVIATIONS AND ACRONYMS

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
Battelle	Battelle Memorial Institute
bgs	below ground surface
DEH	Department of Environmental Health
EPA	US Environmental Protection Agency
FWENC	Foster Wheeler Environmental Corporation
LCS	laboratory control sample
MCB	Marine Corps Base
MCL	Maximum Contaminant Level
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MTBE	methyl tert-butyl ether
NAVFAC SW	Naval Facilities Engineering Command, Southwest Division
PAH	polynuclear aromatic hydrocarbon
PRG	Preliminary Remediation Goal
RL	reporting limit
SESTECH	Sealaska Environmental Services LLC and TetraTech EC, Inc.
SPLP	Synthetic Precipitation Leaching Procedure
TPH	total petroleum hydrocarbons
TPH-d	total petroleum hydrocarbons quantified as diesel
TPH-g	total petroleum hydrocarbons quantified as gasoline
TPH-jf	total petroleum hydrocarbons quantified as jet fuel
TPH-mo	total petroleum hydrocarbons quantified as motor oil
TtEC	Tetra Tech EC, Inc.
UST	Underground Storage Tank
VOC	volatile organic compound
Water Board	California Regional Water Quality Control Board
Work Plan	Interim Remedial Action Work Plan
WQO	Water Quality Objective

1.0 INTRODUCTION

This Interim Remedial Action Report summarizes well abandonment and soil excavation activities completed at Underground Storage Tank (UST) Site 1441, located in the 14 Area of Marine Corps Base (MCB) Camp Pendleton, California (Figure 1-1). The site contained an UST that used to store diesel that leaked and impacted both soil and groundwater. The work was completed based on comments received from the California Regional Water Quality Control Board (Water Board) in a letter dated June 10, 2004 (reference: SMC:50-3424.05:grifb) and discussions held during a meeting with the Water Board on June 1, 2005. This report was prepared by SES-TECH, a joint venture between Sealaska Environmental Services LLC and Tetra Tech EC, Inc. (TtEC) under the Naval Facilities Engineering Command, Southwest (NAVFAC SW) Environmental Remediation Contract No. N68711-04-D-1104, Contract Task Order No. 0003.

1.1 SITE IDENTIFICATION

Site Address:	Building 1441, 14 Area, MCB Camp Pendleton, California 92055
Facility:	1 st Human Intelligence Unit Office Building
Water Board Case No.:	9UT3424
Department of Environmental Health (DEH) Case No.:	H05939-306
Property Owner:	United States Marine Corps
MCB Camp Pendleton Contact:	Mr. Chet Storrs, Remediation Branch Manager Assistant Chief of Staff, Environmental Security Building 22165 MCB Camp Pendleton, CA 92055-5008 (760) 725-9774
Remedial Project Manager:	Mr. Bipin Patel NAVFAC SW 1220 Pacific Highway San Diego, CA 92132-5181 (619) 532-4814
Responsible Party:	United States Marine Corps

1.2 OBJECTIVES

The primary objective of the interim remedial action was to remove as much contaminated soils as practical from the former tank cavity area. The scope of work for this project included the following tasks:

- Develop an Interim Remedial Action Work Plan (Work Plan; SES-TECH, 2005) prior to field implementation
- Destroy three groundwater monitoring wells located in the area of proposed excavation prior to soil excavation activities
- Excavate as much impacted soil as practical around the former tank cavity
- Collect excavation confirmation soil samples
- Restore the site to its original condition
- Transport and properly dispose of excavated soil
- Prepare a soil excavation report (this document)

2.0 PHYSICAL SETTING AND PREVIOUS INVESTIGATIONS

The following sections provide a brief description of the site, local geology and hydrogeology, and a summary of previous site activities.

2.1 SITE DESCRIPTION

Site 1441 is located on 15th Street in the 14 Area of MCB Camp Pendleton, approximately 700 feet southeast of the intersection of 15th Street and 16th Street (Figure 2-1). Building 1441 was constructed on stanchions approximately 2 to 4 feet above the ground surface and currently functions as an office building housing the 1st Human Intelligence Unit. The site previously contained a 1,000-gallon, reinforced concrete UST that was used to store diesel fuel for heating the building. The tank was 7 feet tall (extending 12 inches aboveground) and 6 feet in diameter.

The site is relatively flat and has asphalt driveways on the north and south sides of the building, and a parking area located on the west side of the building. The site is located on the western edge of Pilgrim Creek Canyon with approximately 70 feet of vertical relief to the creek bed below.

2.2 GEOLOGY AND HYDROGEOLOGY

The geology at Site 1441 primarily consists of a thin layer of fine- to medium-grained sands overlying both weathered and very competent granitic bedrock. The sands are considered part of the Middle-Eocene Santiago Formation of the La Jolla Group. The weathered and competent bedrock are encountered at various depths between approximately 2 to 10 feet below ground surface (bgs). During soil excavation activities in the area of the former tank cavity, the bedrock was encountered as shallow as 2 feet bgs.

According to the *Water Quality Control Plan for the San Diego Basin* (Water Board, 1994), Site 1441 is located within the Mission Hydrologic Subarea of the Lower San Luis Hydrologic Area within the San Luis Rey Hydrologic Unit. Groundwater in this area has designated beneficial uses including municipal and domestic supply, agricultural supply, industrial process supply, and industrial service supply. However, no groundwater supply wells are located within 2 miles of the site.

The site is located approximately 500 feet to the west of Pilgrim Creek, which is a tributary to the San Luis Rey River. Surface water from Pilgrim Creek has been designated by the Water Board to have beneficial uses for agricultural supply, industrial service supply, contact water recreation, non-contact water recreation, warm freshwater habitat, and wildlife habitat.

During the most recent groundwater monitoring event completed at the site in June 2003 [Foster Wheeler Environmental Corporation (FWENC), 2003], groundwater was first encountered

between approximately 5 and 18 feet bgs. Water-level data collected from the site indicated that groundwater flowed to the southwest with an approximate hydraulic gradient of 0.3 feet per foot (FWENC, 2003). During June 2003 sampling event, free product was not reported in any well.

2.3 UST REMOVAL

In 1997, the 1,000-gallon diesel UST was removed from the site. The excavation was 12 feet by 11 feet and approximately 7 feet deep. A Hazardous Materials Specialist from the DEH directed soil sampling activities. Two soil samples were collected from beneath the tank cavity and one sample was collected from where the pipeline entered the building. The samples were analyzed for total petroleum hydrocarbons (TPH) quantified as gasoline (TPH-g) and TPH quantified as diesel (TPH-d). TPH-g was not detected, but TPH-d was detected at 3,800 and 8,100 milligrams per kilogram (mg/kg) in the samples beneath the tank and at 9,300 mg/kg in the sample from beneath the pipeline. The locations of the samples and analytical results are shown on Figure 2-2.

Following the tank excavation, the area was backfilled with the excavated soil and with clean fill to replace the void created by removing the tank.

2.4 SITE ASSESSMENT

In September 1998, a site assessment was completed consisting of eight soil borings (SB01 to SB08) [Battelle Memorial Institute (Battelle), 1999]. The soil borings were located around the former UST and fill pipeline where hydrocarbons had been detected during tank removal activities (Figure 2-2).

The initial boring (SB01) was continuously cored in the former tank cavity for lithologic characterization to a depth of 8 feet bgs, at which point the core barrel was refused by competent bedrock and groundwater was encountered. The boring was further advanced to a total depth of 15 feet with an air rotary drilling rig (SB01A). Boring SB02 was located near the southeast corner of the building to investigate the area surrounding the former remote fill location and was hand-augered to 6.5 feet bgs. The remaining soil borings (SB03 through SB08) were advanced to depths ranging from 50 to 60 feet bgs around the former tank cavity using an air rotary drilling rig due to the difficult drilling conditions. Saturated sediments and/or moist bedrock were detected during drilling in each soil boring, except SB05, which was angle drilled to the northeast under the building. Soil samples were typically collected every 5 feet during drilling, and six permanent groundwater monitoring wells were subsequently installed.

All soil and groundwater samples were analyzed for TPH-d, TPH quantified as jet fuel (TPH-jf), and TPH quantified as motor oil (TPH-mo). Based on visual inspection of the soil cuttings, specific soil samples were also analyzed for volatile organic compounds (VOCs) and polynuclear aromatic hydrocarbons (PAHs). All groundwater samples were also analyzed for VOCs and PAHs. Synthetic Precipitation Leaching Procedure (SPLP) tests were performed on two soil

samples with relatively high TPH-d concentrations and one soil sample with the lowest TPH-d concentration above 100 mg/kg.

The initial boring (SB01), drilled to 15 feet bgs, encountered groundwater between 7 and 8 feet bgs, and the top of the competent bedrock at approximately 8 feet bgs. The groundwater was believed to have been accumulated in the former UST excavation and was perched by the underlying competent bedrock. Drilling of the other borings indicated that groundwater was present in two zones. The first, or shallow zone, was near the former UST excavation perched above the competent bedrock. The second, or deeper zone, occurred at various depths between approximately 10 and 35 feet bgs within the weathered and fractured bedrock in each boring. Upon completion of the monitoring wells, infiltrating water entered by what appeared to be relatively slow seepage from the fractured granodioritic bedrock that filled the borings to varying depths ranging from 14 to 22 feet bgs.

Free product was observed in several borings prior to the installation of monitoring wells. Measurable thicknesses of free product were observed in borings SB03 (0.05 feet), SB04 (0.09 feet), SB06 (0.26 feet), SB07 (0.14 feet), and SB08 (0.26 feet). Following the installation of the groundwater monitoring wells, but prior to well development, free product was only observed in MW01 (SB08) at 0.02 feet. After well development and immediately prior to sampling on October 28, 1998, free product was observed in well MW02 (SB04) at a thickness of 0.15 feet and a sheen was observed in well MW01. Table 2-1 provides a summary of the water level and free-product data measured during sampling.

Figures 2-3 and 2-4 present the results for soil samples analyzed during the site assessment. Based on the results, it was concluded the majority of the soil contamination was located in the vadose zone surrounding the former tank area. However, contamination was also reported as deep as 45 feet bgs (SB03), where TPH-d was detected at 170 mg/kg. The highest TPH-d concentration detected in the soil, 2,400 mg/kg, was observed in SB03 at 30 feet bgs (Figure 2-3). Soil contamination was reported to extend from the former tank cavity to SB06, located approximately 42 feet away. Thirteen VOCs and four PAH compounds were also detected at maximum concentrations of 2,600 micrograms per kilogram ($\mu\text{g/kg}$) for 1,2,4-trimethylbenzene and 3,100 $\mu\text{g/kg}$ for phenanthrene (Figure 2-4).

SPLP analyses were performed on two soil samples with relatively high TPH-d concentrations (SB01-GRAB-08' with 2,300 mg/kg TPH-d, and SB06-14' with 2,100 mg/kg TPH-d) and on one soil sample with the lowest measured TPH concentration above 100 mg/kg (SB07-50' with 110 mg/kg TPH-d). SPLP test results indicated that 10 VOCs were present in the leachate ranging from 0.59 micrograms per liter ($\mu\text{g/L}$) (o-xylene) to 5.1 $\mu\text{g/L}$ (1,3,5-trimethylbenzene) (Battelle, 1999). PAHs were not detected in any of the samples.

Figure 2-5 illustrates the location of monitoring wells MW01, MW01A, MW02, MW03, MW04, and MW05 in relation to the former UST and Building 1441. Groundwater samples collected during the site assessment indicated that TPH-d was present in each well at concentrations ranging from 3.8 to 13 milligrams per liter (mg/L). In addition, 17 VOCs were detected in the groundwater with concentrations ranging from 1.0 µg/L of bromodichloromethane to 120 µg/L of naphthalene. Included in the group of detected VOCs was benzene, which was detected in MW01, MW02, MW03, MW04, and MW05 at concentrations of 6.0, 22, 2.7, 0.75, and 5.6 µg/L, respectively. In addition, trichloroethene was detected in MW02 at 1.3 µg/L, and methyl tert-butyl ether (MTBE) was detected in MW02 at 0.57 µg/L and in MW04 at 1.5 µg/L. Naphthalene was the only PAH observed in the groundwater samples and was detected in MW01A and MW02 at 34 and 43 µg/L, respectively. Figure 2-5 illustrates the groundwater sample results in relation to the sampling locations.

2.5 QUARTERLY GROUNDWATER SAMPLING

After collecting groundwater samples during the site assessment in 1998, four additional quarterly sampling events were completed between November 2000 and July 2001 (Battelle, 2001). The sampling events were completed in November 2000, January 2001, April 2001, and July 2001.

An oil-water interface probe was used to monitor the depth to groundwater and to check for the presence of free product in each well during each event. In MW05, free product was measured in November 2000 and January 2001 at 0.15 foot and 1.18 feet, respectively. All site wells were sampled each quarter, except for MW05 in November 2000 and January 2001, when free product was present.

Water-level data collected from monitoring wells MW02, MW03, and MW04 were used to determine groundwater flow direction and hydraulic gradient. Based on the water levels collected during the last sampling event (July 2001), groundwater flowed to the southwest with an average gradient of 0.2. This is consistent with groundwater flow directions calculated during the other events. Water levels measured during the four quarterly events are presented on Table 2-1.

During the four sampling events, groundwater samples were analyzed for TPH-d, TPH-jf, TPH-mo, and VOCs. Groundwater samples collected during the last (July 2001) sampling event indicated the presence of TPH-d in all wells. Concentrations of TPH-d ranged from 0.51 to 43 mg/L. The highest concentration of TPH-d was measured in well MW05. Benzene was measured in MW01, MW01A, MW02, and MW05 at concentrations of 3.6 µg/L, 0.32 µg/L, 0.78 µg/L, and 2.7 µg/L, respectively. Ethylbenzene was detected in MW01, MW01A, and MW02 at concentrations of 6.1 µg/L, 8.7 µg/L, and 3.7 µg/L, respectively. Xylenes were measured in MW01, MW01A, and MW05 at concentrations of 0.70 µg/L, 0.57 µg/L, and 10.7 µg/L, respectively. Naphthalene was measured in MW01, MW01A, MW02, and MW05 at

concentrations of 30 µg/L, 62 µg/L, 19 µg/L, and 18 µg/L, respectively. MTBE was detected in MW01 and MW01A at concentrations of 1.8 µg/L and 0.50 µg/L, respectively. No VOCs were detected in wells MW03 and MW04. All other VOCs detected at Site 1441 were either below their respective Maximum Contaminant Levels (MCLs), or no MCL exists for the compound. The analytical results for each of the four sampling events are summarized on Figure 2-6.

During each of the four quarterly sampling events, TPH-d was detected in all wells sampled at concentrations that exceeded the secondary taste and odor water quality threshold value of 0.1 mg/L. Additionally, benzene concentrations in MW01 and MW05 exceeded the MCL for benzene (1 µg/L) during each event. However, MW05 was not sampled during the November 2000 and January 2001 event due to the presence of free product. All other petroleum hydrocarbon compounds detected at Site 1441 were either below their respective MCLs or no MCL exists for the compound.

2.6 ADDITIONAL GROUNDWATER SAMPLING

In June 2003, an additional groundwater sampling event was conducted at Site 1441 to determine if Comprehensive Environmental Response, Compensation, and Liability Act constituents were present in groundwater [FWENC, 2003].

Using low-flow groundwater sampling techniques, all six wells at the site were sampled for TPH-d, TPH-jf, TPH-mo, VOCs, and total lead. Groundwater elevation data collected in June 2003 (Table 2-1) indicated that groundwater flowed to the southwest with a gradient of approximately 0.3 feet per foot (Figure 2-7). Free product was not observed in any well.

As summarized on Table 2-2, analytical results indicated that TPH-d and TPH-jf were present in all six wells at concentrations between 0.90 mg/L and 15 mg/L. Trichloroethene was detected in MW01 at an estimated value of 0.54 µg/L. Benzene, the only VOC present above its MCL (1.0 µg/L), was present in MW01 and MW05 at 2.1 µg/L and 1.2 µg/L, respectively. A variety of other VOCs was reported, but at low to estimated values (Table 2-2). Lead was only detected at estimated values in wells MW01A and MW02.

3.0 INTERIM REMEDIAL ACTION

This section summarizes the tasks performed to excavate diesel-impacted soils at UST Site 1441.

3.1 WORK PLAN

Prior to the start of field activities, a Work Plan was prepared and submitted to NAVFAC SW, MCB Camp Pendleton, and the Water Board for review (SES-TECH, 2005).

3.2 UTILITY SURVEY

Prior to excavation, ULS Corporation conducted a geophysical survey at the site to identify underground utilities. An underground drain line and natural gas lines were identified. Representatives from the Base facilities department visited the site and confirmed these results.

3.3 GROUNDWATER MONITORING WELL ABANDONMENT

Three monitoring wells located in the area of excavation were abandoned on January 27, 2006, under DEH permit No. LMON 103667 (issued January 6, 2006). The wells (MW01, MW01A and MW02) were abandoned by Test America by overdrilling with an 8-inch-diameter auger; however, due to difficult drilling encountered at approximately 10 feet bgs, a 6-inch-diameter auger was used to overdrill each well to approximately 38, 15, and 30 feet bgs, respectively. The borings were tremie-backfilled with bentonite grout and bentonite chips to the ground surface. Copies of the well abandonment permit and permit closeout documentation are included as Appendix A.

3.4 SOIL EXCAVATION AND BACKFILLING

On January 30 and 31, 2006, TPH-d-impacted soil was excavated from the former tank cavity area. The horizontal dimensions of the excavation were 20 feet on the north and south sides, by 19 feet on the west side, and 25 feet on the eastside. The excavation depth was limited by very competent bedrock located at 10 feet bgs (Figure 3-1). A total of approximately 162 cubic yards of soil was excavated. The horizontal extent of the excavation was limited to the north and to the east by Building 1441 and to the south by shallow (4 feet bgs) competent bedrock (Figure 3-1 and Figure 3-2). The competent bedrock could not be excavated even after repeated attempts with the excavator. Due to the constraints on the excavation, some impacted soil was left in place. Stained soil was present along approximately 2/3 of the bottom, between approximately 7 and 10 feet bgs on the north and east sidewalls, and between 7.5 to 10 feet bgs on the south sidewall (Figure 3-2). No staining was observed on the west sidewall.

The remaining impacted area is estimated to extend within 5 feet of the north and east sidewalls, and within 10 feet of the south sidewall (approximated due to site investigation soil sample

results), and, due to the very competent nature of the bedrock along the bottom, is conservatively expected to extend approximately 2 feet beyond the bottom of the excavation. Based on these estimated dimensions, approximately 65 cubic yards of diesel-impacted soil remains at the site.

Soil removed from the excavation was temporarily stockpiled in accordance with Water Board 95-96 Guidelines (Water Board, 1995) prior to being transported off site for disposal. A copy of the stockpile waiver certificate is included in Appendix B.

The excavation was open for approximately 2 hours before backfilling began and groundwater did not enter the excavation. Backfilling the excavation was completed on January 31 and February 1, 2006, with fill material from the MCB Camp Pendleton borrow pit (Three Mile Pit). The backfill material was sampled and analyzed for TPH-d (US Environmental Protection Agency (EPA) Method 8015M), pH (EPA Method 9045), Title 22 Metals (EPA Method 6010B), and asbestos (California Air Resources Board Method 435). Analytical results from the backfill material were within acceptance limits specified in the project Work Plan [SES-TECH, 2005] for all parameters except thallium (Table 3-1). Thallium was detected at 7.23 mg/kg, which is slightly above the residential Preliminary Remediation Goal (PRG) of 5.2 mg/kg (EPA, 2004). Arsenic was also reported in the fill material above its residential PRG; however, the level was below the average background level for arsenic in surface soils at MCB Camp Pendleton [Southwest Division Naval Facilities Engineering Command, 1997]. Analytical laboratory reports from the fill material are included in Appendix C. The fill material was placed in 1-foot lifts using a front-end loader, with the goal of a minimal 90 percent compaction. Ninyo and Moore performed compaction tests on each 1-foot lift from 5 feet bgs to surface to ensure that the required compaction level had been achieved. All results were between 93 and 99 percent compaction. The compaction report is included as Appendix D.

3.5 CONFIRMATION SOIL SAMPLING AND ANALYSIS

Ten soil confirmation samples were collected from the bottom and sidewalls of the excavation: two samples from the east sidewall, two samples from the south sidewall, one sample from the west sidewall, two samples from the north sidewall, and three samples from the excavation bottom. A duplicate sample was collected from the west sidewall. The samples were collected from the excavator bucket using disposable sampling equipment at depths ranging from 5.5 to 10 feet bgs. The samples were placed into pre-cleaned 8-ounce glass jars, labeled, placed on ice, and transported to the laboratory via courier for analysis. All the confirmation samples were analyzed for TPH-d (EPA Method 8015B). The three samples with the highest TPH-d results were also analyzed for SPLP/TPH-d, SPLP/VOCs, and SPLP/PAHs. One sample from the bottom was also analyzed for the presence of total heterotrophic hydrocarbon degraders and total diesel oxidizing degraders. Sample locations and analytical results are shown on Figure 3-2 and are summarized in Table 3-1. Laboratory analytical reports and chain-of-custody forms are included in Appendix C.

TPH-d was not detected in the confirmation samples collected from the west sidewall and from the northwest section of the bottom of the excavation (Table 3-2). The highest level of TPH-d was detected along the east sidewall at 3,500 mg/kg. The north sidewall contained 1,800 mg/kg TPH-d, and the south sidewall contained 290 mg/kg TPH-d. The bottom contained up to 1,300 mg/kg TPH-d. As indicated earlier, the excavation could not be extended to the north and the east because of Building 1441, and the excavation could not be extended any deeper or to the south due to the presence of competent bedrock.

The three samples with the highest detected concentrations of TPH-d (one sample from the excavation bottom and one sample each from the north and east sidewalls) were further analyzed for SPLP/TPH-d, SPLP/VOCs and SPLP/PAHs (Table 3-2). SPLP/TPH-d was detected in the sample collected from the excavation bottom at a concentration of 1.0 mg/L, and was detected in both the east and north sidewalls at 1.2 mg/L (Table 3-2). Ethylbenzene was the only SPLP/VOC detected [1.2 µg/L] in the sample collected from the east sidewall (Table 3-2). SPLP/PAHs analysis detected concentrations of acenaphthene, acenaphthylene, fluorene, and phenanthrene in all three samples with maximum concentrations of 1.3 µg/L, 0.35 µg/L, 3.7 µg/L, and 0.23 µg/L, respectively. Additionally, naphthalene was detected in the samples collected from the east sidewall and the excavation bottom at a maximum concentration of 2.5 µg/L (Table 3-2).

One of the bottom samples was additionally submitted for analyses for the presence of total aerobic heterotrophic bacteria and total diesel oxidizing bacteria (Table 3-2). Results indicated that 4.45E^{+04} total aerobic heterotrophic bacteria, and 1.41E^{+04} total diesel oxidizing bacteria are naturally present in soil. These bacteria are capable of degrading the hydrocarbon contamination at the site and are present at levels above that considered optimal (1.0E^{+3}) (EPA, 1995).

3.5.1 Quality Assurance and Quality Control

All confirmation samples were collected and preserved in accordance with the *San Diego County Site Assessment and Mitigation Manual 2005* (DEH, 2005). Samples were transported to the analytical laboratory by courier and were analyzed within the method-specific analytical holding times. EMAX Laboratories, a California state-certified and Naval Facilities Engineering Service Center-evaluated laboratory, performed sample analyses.

To assess sampling variability, a field duplicate sample was collected from the west sidewall (identified as 0003-376) and analyzed for TPH-d. TPH-d was not detected in either sample.

In accordance with the method and project specifications (SES-TECH, 2005), method blanks, surrogate spikes, and laboratory control samples (LCSs) and LCS duplicates were analyzed to assess method accuracy and precision. There were no detections of target constituents in the method blanks at levels greater than half of the project reporting limits (RLs) during this event. Percent recoveries in LCSs and surrogates, as well as relative percent differences between LCS/LCSD samples, were within the project-specific quality control acceptance limits.

3.6 WASTE TRANSPORTATION AND DISPOSAL

On February 13, 2006, the excavated TPH-d-impacted soil was transported by General Environmental Management to Candelaria Environmental in Anza, California, as non-hazardous waste for disposal. The soil profile was established using analytical data from previous site investigations and copies of the Non-Hazardous Materials Hauling Manifests are included as Appendix E.

3.7 MONITORING WELL CONSTRUCTION

The Work Plan (SES-TECH, 2005) proposed the installation of four new groundwater monitoring wells after the soil excavation activities were complete to replace the three wells that were destroyed (see Section 3.3). The new wells will be installed before the next groundwater sampling event is completed, and the well installation details will be included in the next groundwater sampling report. It is anticipated that the next groundwater sampling event will be completed in June 2006.

4.0 SUMMARY

Below is a summary of results from the interim remedial action completed at Site 1441:

- Approximately 162 cubic yards of diesel-impacted soil were successfully excavated from the former UST tank area.
- TPH-d was not detected in the confirmation soil samples collected from the west sidewall and from the northwest section of the bottom of the excavation (Table 3-2). The highest level of TPH-d was detected along the east sidewall at 3,500 mg/kg, and the north sidewall contained 1,800 mg/kg TPH-d. The excavation could not be extended further to the north or to the east because of Building 1441 (Figure 3-2). The south sidewall contained 290 mg/kg TPH-d, and the excavation bottom contained up to 1,300 mg/kg TPH-d. The excavation also could not be extended to the south and any deeper due to the presence of very competent bedrock. The competent bedrock could not be removed even after repeated attempts with the excavator.
- Assuming the remaining impacted soils extend 5 feet from both the north and east sidewalls, and 10 feet from the south sidewall (approximated due to site investigation soil sample results), and, due to the very competent nature of the bedrock along the bottom, which is assumed to extend approximately 2 feet beyond the bottom of the excavation, approximately 65 cubic yards of diesel-impacted soil remains at the site.
- The three confirmation soil samples with the highest TPH-d results were further analyzed for SPLP/TPH-d, SPLP/VOCs, and SPLP/PAHs. SPLP/TPH-d was detected between 1.0 and 1.2 mg/L (Table 3-1). The only SPLP/VOC detected was ethylbenzene at 1.2 µg/L in one sample. Several SPLP/PAHs were detected, including acenaphthene, acenaphthylene fluorene, phenanthrene, and naphthalene up to 1.3 µg/L, 0.35 µg/L, 3.7 µg/L, 2.3 µg/L, and 2.5 µg/L, respectively.
- One confirmation soil sample was additionally submitted for microbial analysis and results indicated that 4.45E^{+4} total aerobic heterotrophic bacteria and 1.41E^{+4} total diesel oxidizing bacteria are naturally present in soil. These bacteria, capable of degrading the hydrocarbon contamination at the site, are present at levels above that considered optimal (1.0E^{+3}) (EPA, 1995).

The Work Plan for Site 1441 (SES-TECH, 2005) proposed the installation of four new groundwater monitoring wells after the soil excavation was complete to replace the three wells that were destroyed (see Section 3.3). The new wells will be installed before the next groundwater sampling event begins, and the well installation details will be included in the next groundwater sampling report. It is anticipated that the next groundwater sampling event will be completed in June 2006.

5.0 REFERENCES

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TABLES

TABLE 2-1

**HISTORICAL GROUNDWATER AND FREE PRODUCT LEVEL MEASUREMENTS,
UST SITE 1441, MCB CAMP PENDLETON**

Number Well	Date Measured	Top of Casing Elevation (ft amsl)	Screen Interval (ft btoc)	Water Level (ft btoc)	Water Elevation (ft amsl) ^a	Product Level (ft btoc)	Product Elevation (ft amsl)	Free Product
MW01	10/27/98	317.69	18-38.0	19.14	298.55	19.14	298.55	Sheen
	11/06/00			18.73	298.96 (298.97)	18.72	298.97	0.1
	01/11/01			17.60	300.09 (300.10)	17.59	300.10	0.1
	04/04/01			10.60	307.09	--	--	--
	07/16/01			11.17	306.52	--	--	--
	06/23/03			13.75	303.94	--	--	--
MW01A	10/27/98	317.52	5-15.0	7.22	310.30	--	--	--
	11/06/00			7.42	310.10	--	--	--
	01/11/01			2.26	315.26	--	--	--
	04/04/01			3.07	314.45	--	--	--
	07/16/01			5.06	312.46	--	--	--
	06/23/03			5.67	311.85	--	--	--
MW02	10/27/98	317.03	10-30.0	12.41	304.62	--	--	--
	11/06/00			15.96	301.07	15.96	301.07	Sheen
	01/11/01			16.07	300.96	16.07	300.96	Sheen
	04/04/01			8.04	308.99	--	--	--
	07/16/01			8.23	308.80	--	--	--
	06/23/03			9.85	307.18	--	--	--
MW03	10/27/98	318.28	10-30.0	14.04	304.24	--	--	--
	11/06/00			8.72	309.56	--	--	--
	01/11/01			8.28	310.00	--	--	--
	04/04/01			6.97	311.31	--	--	--
	07/16/01			5.37	312.91	--	--	--
	06/23/03			8.55	309.73	--	--	--
MW04	10/27/98	317.16	9-29.0	16.21	300.95	--	--	--
	11/06/00			21.76	295.40	--	--	--
	01/11/01			19.78	297.38	--	--	--
	04/04/01			10.78	306.38	--	--	--
	07/16/01			8.87	309.29	--	--	--
	06/23/03			17.48	299.68	--	--	--

TABLE 2-1

**HISTORICAL GROUNDWATER AND FREE PRODUCT LEVEL MEASUREMENTS,
UST SITE 1441, MCB CAMP PENDLETON**

Number Well	Date Measured	Top of Casing Elevation (ft amsl)	Screen Interval (ft btoc)	Water Level (ft btoc)	Water Elevation (ft amsl) ^a	Product Level (ft btoc)	Product Elevation (ft amsl)	Free Product
MW05	10/27/98	316.99	10-30.0	16.00	300.99	--	--	--
	11/06/00			20.26	296.73 (296.86)	20.11	296.88	0.15
	01/11/01			21.17	295.82 (296.81)	19.99	297.00	1.18
	04/04/01			7.85	309.135 (309.14)	7.85	309.14	Sheen
	07/16/01			11.54	305.45 (305.14)	11.515	305.475	0.025
	06/23/03			11.41	305.38	--	--	--

Notes:

^(a) Value in parentheses indicates groundwater elevation corrected for the presence of free product using a density factor for diesel fuel of 0.84 g/cm³.

Shading indicates water level was above the top of the screen.

amsl – above mean sea level

btoc – below top of casing

ft – feet

g/cm³ – grams per cubic centimeter

MCB – Marine Corps Base

UST – Underground Storage Tank

TABLE 2-2

SUMMARY OF JUNE 2003 GROUNDWATER SAMPLE RESULTS FOR UST SITE 1441, MCB CAMP PENDLETON

Well ID	Date Sampled	Sample ID	TPH-d mg/L	TPH-jf mg/L	VOCs ⁽¹⁾															Total Lead mg/L
					TPH-mo mg/L	Trichloroethene µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Naphthalene µg/L	Xylenes µg/L	N-Propylbenzene µg/L	Sec-Butylbenzene µg/L	N-Butylbenzene µg/L	Isopropyl Benzene µg/L	4-Isopropyltoluene µg/L	1,2,4-Trimethylbenzene µg/L	1,3,5-Trimethylbenzene µg/L	Tert-Butylbenzene µg/L	
Water Quality Objectives (MCLs)			0.1 ⁽²⁾	(3)	(3)	5.0	1.0	150	680	(3)	1750	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	15
MW01	06/24/03	0026-521	12	5.6	0.92	0.54J	2.1	0.27J	4.4	--	0.53	1.8	0.99J	1.1	1.5	0.26J	--	--	--	--
MW01A	06/24/03	0026-520	8.5	3.6	1.2	--	--	--	1.8	1.9J	0.22J	0.56J	--	0.43J	0.54J	--	--	--	--	0.0027J
MW02	06/24/03	0026-519	6.8	3.2	--	--	0.2J	--	0.25J	--	--	0.83J	0.47J	--	0.74J	0.42J	--	--	--	0.003J
MW03	06/24/03	0026-518	2.1	0.90	--	--	--	--	--	--	--	0.28J	0.47J	0.63J	0.26J	--	--	--	--	--
MW04	06/24/03	0026-516	1.7	0.91	--	--	0.23J	--	--	--	--	--	0.66J	0.62J	0.37J	--	--	--	--	--
MW04 dup	06/24/03	0026-517	2.0	1.1	--	--	0.24J	--	--	--	--	--	0.72J	0.64J	0.42J	--	--	--	--	--
MW05	06/24/03	0026-522	15	12	1.0	--	1.2	--	1.1	5.4	7.0	1.9	1.0	1.3	1.9	2.0	16	4.7	0.21J	--
Reporting Limits			0.05	0.1	0.5	1.0	0.5	0.5	0.5	2.0	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.005

Notes:

Bolded and shaded values above MCLs

(1) Only includes compounds detected above laboratory detection limits

(2) Secondary taste and odor threshold for diesel

(3) No established water quality objective

-- - not detected above laboratory reporting limits

µg/L - micrograms per liter

dup - duplicate

J - estimated value, result less than the reporting limit but more than the method detection limit

MCB - Marine Corps Base

MCL - Maximum Contaminant Level

mg/L - milligrams per liter

TPH-d - total petroleum hydrocarbons quantified as diesel

TPH-jf - total petroleum hydrocarbons quantified as jet fuel

TPH-mo - total petroleum hydrocarbons quantified as motor oil

UST - Underground Storage Tank

VOC - volatile organic compound

TABLE 3-1

**SUMMARY OF FILL SOIL SAMPLE RESULTS,
UST SITE 1441, MCB CAMP PENDLETON, CA**

Sample ID	Date Sampled	TPH-d	Title 22 Metals																	Asbestos	pH
			Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc		
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	percent	N/A
0004-070	1/12/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	--
0004-071	1/12/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	--
0004-072	1/17/2006	ND	ND	2.07	92.2	0.402 J	0.225 J	23.5	5.78	17.7	7.39	1.15 J	ND	16.1	0.784 J	0.624 J	7.23	33.1	49.2	--	8.11
EPA Residential PRGs		N/A	31	0.0062	5400	150	37	30	900	3,100	150	390	23	160	390	390	5.2	78	23,000	--	--

Notes:

-- - not analyzed

N/A - not applicable

EPA - U.S. Environmental Protection Agency

J - estimated value; value falls between the method detection limit and the project reporting limit

MCB - Marine Corps Base

mg/kg - milligrams per kilogram

ND - not detected above laboratory reporting limits

PRG - Preliminary Remediation Goal

TPH-d - total petroleum hydrocarbons quantified as diesel

UST - Underground Storage Tank

TABLE 3-2

**SUMMARY OF SOIL EXCAVATION CONFIRMATION SAMPLE RESULTS,
UST SITE 1441, MCB CAMP PENDLETON, CA**

Sample ID	Date Sampled	Location	Depth	TPH-d		Detected SPLP/VOCs					Detected SPLP/PAHs	Total Aerobic Heterotrophic Bacteria	Total Diesel Oxidizing Bacteria
					SPLP/TPH-d	Acetone	Benzene	Toluene	Ethylbenzene	Total Xylenes			
			feet	mg/kg	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		
0003-069	1/31/2006	East Sidewall (deep)	7	3,500	1.2	ND	ND	ND	1.2	ND	Acenaphthene 1.3 Acenaphthylene 0.26 J Flourene 3.7 Naphthalene 2.5 Phenanthrene 1.8	--	--
0003-070	1/31/2006	East Sidewall (shallow)	5.5	28	--	--	--	--	--	--	--	--	--
0003-071	1/31/2006	South Sidewall (shallow)	6	12	--	--	--	--	--	--	--	--	--
0003-072	1/31/2006	South Sidewall (deep)	8	290	--	--	--	--	--	--	--	--	--
0003-073	1/31/2006	North Sidewall (shallow)	5.5	ND	--	--	--	--	--	--	--	--	--
0003-074	1/31/2006	North Sidewall (deep)	8	1,800	1.2	ND	ND	ND	ND	ND	Acenaphthene 1.3 Acenaphthylene 0.35 J Flourene 2.5 Phenanthrene 0.23 J	--	--
0003-075	1/31/2006	West Sidewall	6	ND	--	--	--	--	--	--	--	--	--
0003-076	1/31/2006	West Sidewall (dup)	6	ND	--	--	--	--	--	--	--	--	--
0003-077	1/31/2006	Bottom (northeast)	10	1,300	1	ND	ND	ND	ND	ND	Acenaphthene 0.96 J Acenaphthylene 0.31 J Flourene 3.3 Naphthalene 1.3 Phenanthrene 2.3	4.45E+04	1.41E+04
0003-078	1/31/2006	Bottom (northwest)	10	ND	--	--	--	--	--	--	--	--	--
0003-079	1/31/2006	Bottom (southwest)	10	340	--	--	--	--	--	--	--	--	--

Notes:

-- - not analyzed

µg/L - micrograms per liter

cfu/g - colony forming units per gram

dup - field duplicate sample

J - estimated value between the method detection limit and project reporting limit

MCB - Marine Corps Base

mg/kg - milligrams per kilogram

mg/L - milligrams per liter

ND - not detected above laboratory reporting limits

PAH - polynuclear aromatic hydrocarbon

SPLP - Synthetic Precipitation Leachate Procedure

TPH-d - total petroleum hydrocarbons quantified as diesel

UST - Underground Storage Tank

VOC - volatile organic compound

FIGURES

DRAWN BY: MD	CHECKED BY: MC	APPROVED BY: MC	DCN: SES-TECH-06-0072	DRAWING NO: 06007211.DWG
DATE: 03/31/06	REV: REVISION 0		CTO: #003	

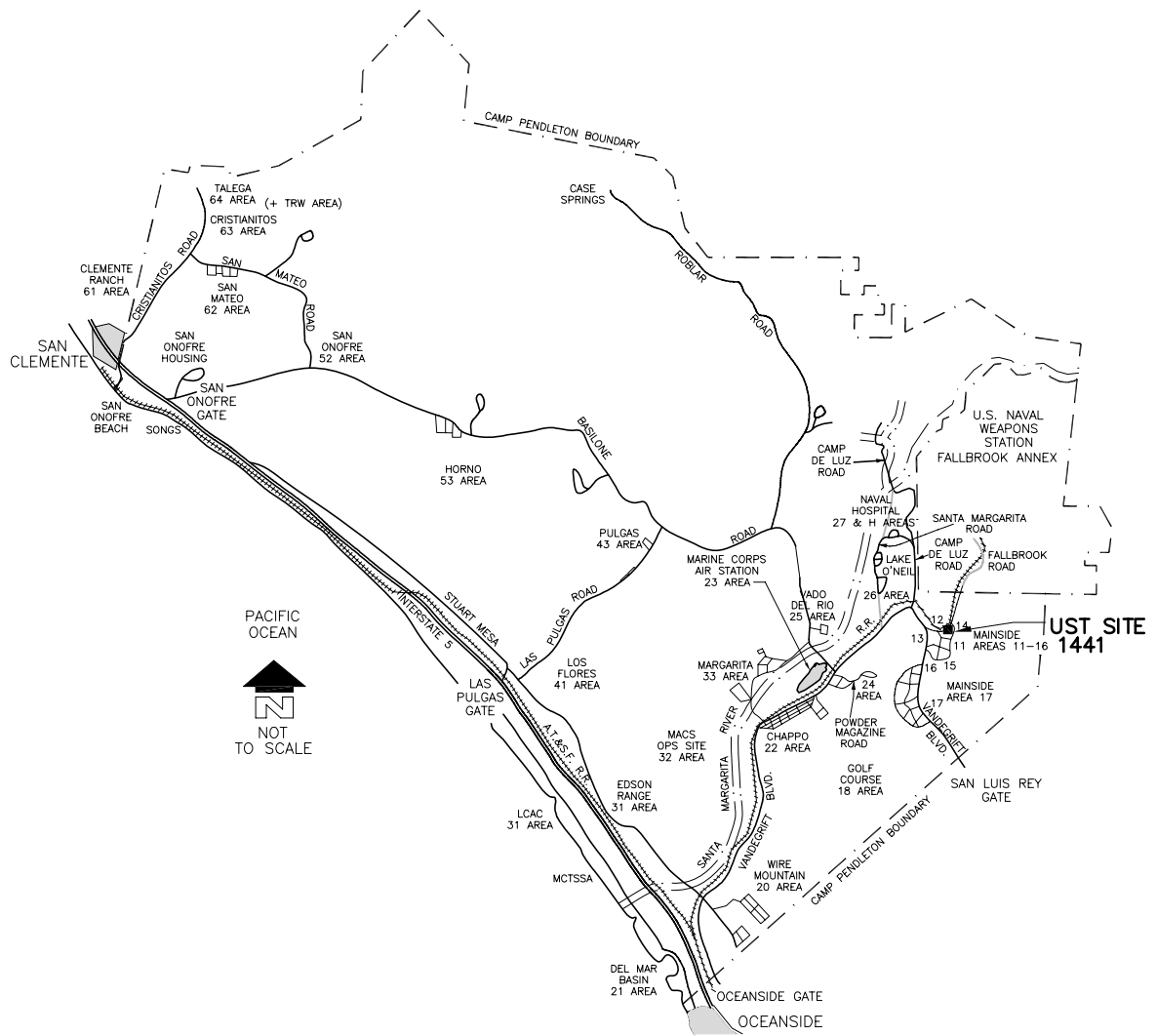


Figure 1-1
SITE VICINITY MAP

MCB CAMP PENDLETON

SES-TECH

DRAWN BY: MD	CHECKED BY: MC	APPROVED BY: MC	DCN: SES-TECH-06-0072	DRAWING NO: 06007221.DWG
DATE: 03/31/06	REV: REVISION 0		CTO: #003	

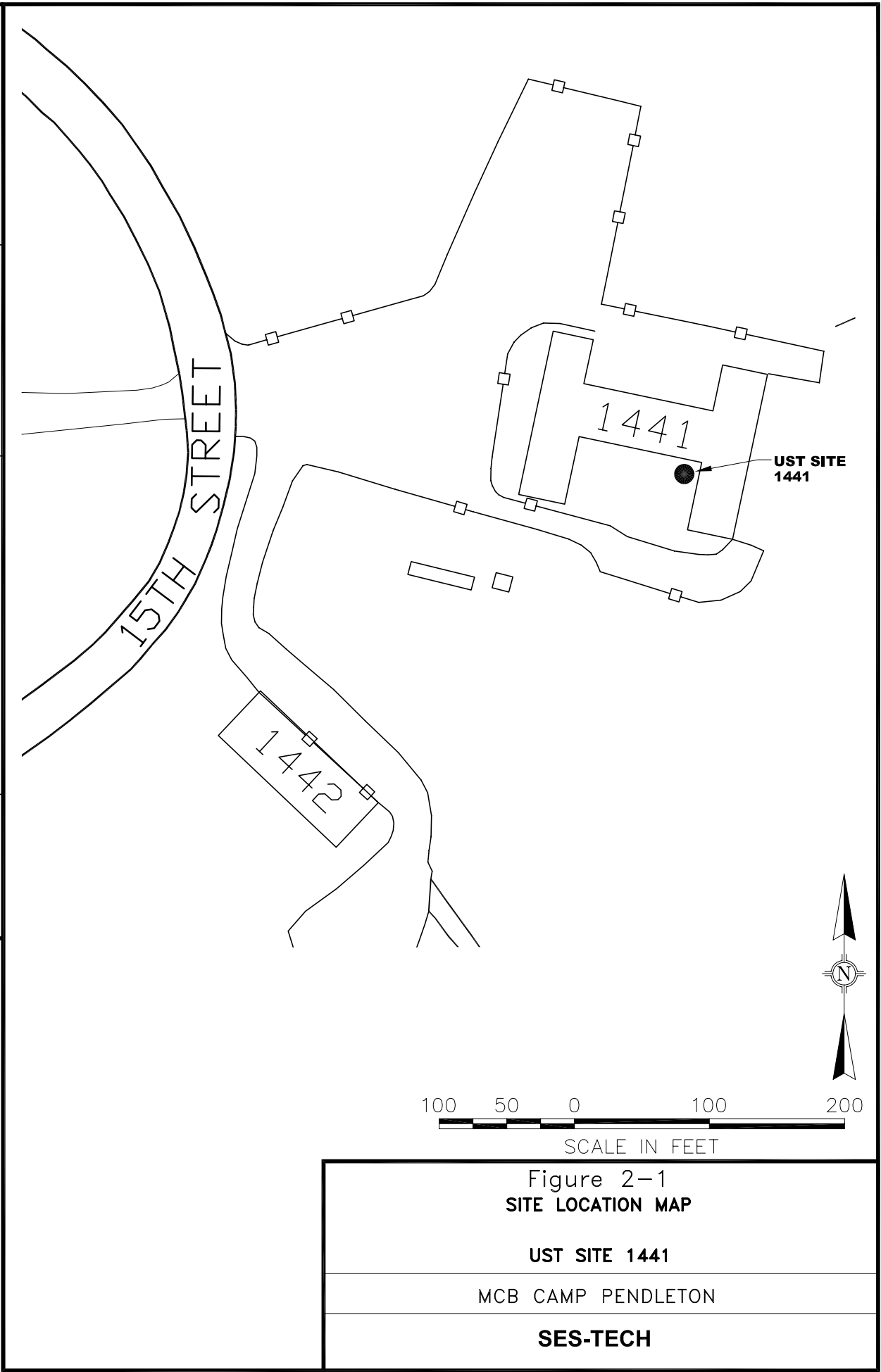


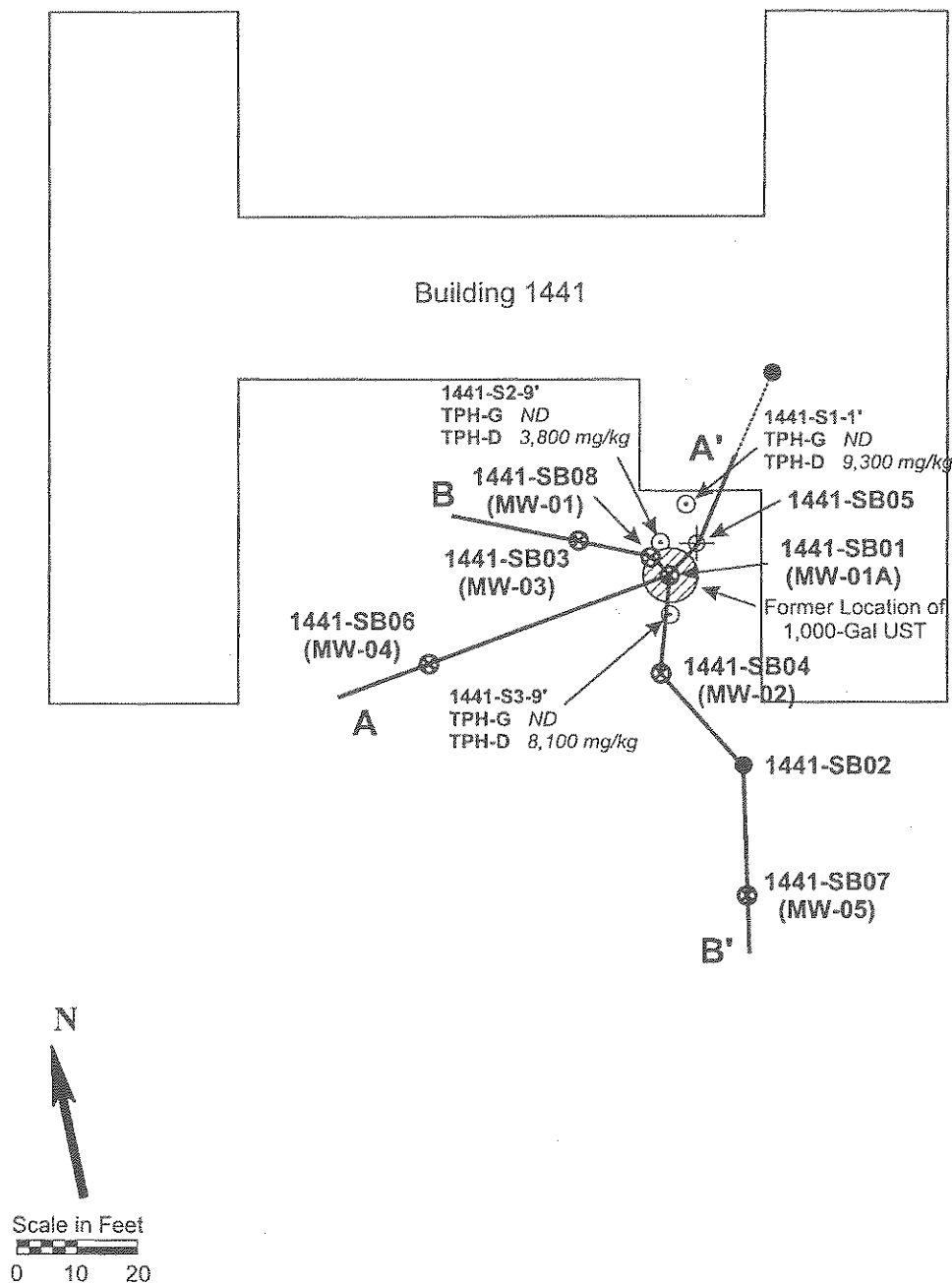
Figure 2-1
SITE LOCATION MAP

UST SITE 1441

MCB CAMP PENDLETON

SES-TECH

DRAWN BY: MD	CHECKED BY: MC	APPROVED BY: MC	DATE: 03/31/06
DCN: SES-TECH-06-0072	CTO: #003	DRAWING NO: 06007222.DWG	
REV: REVISION 0			



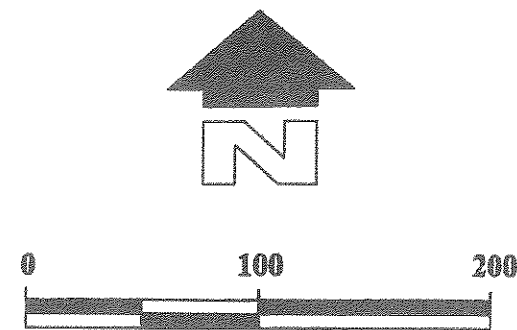
LEGEND:

- TANK REMOVAL SOIL SAMPLE LOCATION
- SITE ASSESSEMENT BORING LOCATION
- ⊗ SITE ASSESSEMENT MONITORING WELL LOCATION
- ⊕ ANGLE BORING LOCATION

Figure 2-2
LOCATION OF TANK REMOVAL SOIL SAMPLES AND
1999 SITE ASSESSMENT BORINGS
UST SITE 1441

MCB CAMP PENDLETON

SES-TECH



SCALE IN FEET

LEGEND

- SOIL BORING LOCATION
- 1441 BUILDING NUMBER
- ROADWAY
- FORMER UST EXCAVATION/LOCATION

NOTES:

TPH-JF = TOTAL PETROLEUM HYDROCARBONS
QUANTIFIED AS JET FUEL
TPH-D = TOTAL PETROLEUM HYDROCARBONS
QUANTIFIED AS DIESEL
TPH-O = TOTAL PETROLEUM HYDROCARBONS
QUANTIFIED AS OIL
VOCs = VOLATILE ORGANIC COMPOUNDS
PNAs = POLYNUCLEAR AROMATIC
HYDROCARBONS
NA = NOT ANALYZED
ND = NOT DETECTED; REFER TO TABLE 2 FOR
REPORTING LIMITS
* = SEE FIGURE 8 FOR VOC AND PNA
DETECTIONS

Sample ID/Depth	TPH-JF (mg/kg)	TPH-D (mg/kg)	TPH-O (mg/kg)	VOCs (µg/kg)	PNAs (µg/kg)
1441-SB06-5'	<10	<10	<10	NA	NA
1441-SB06-10'	<10	1,000	<10	*	<330
1441-SB06-14'	<10	2,100	<10	*	*
1441-SB06-20'	<10	130	<10	NA	NA
1441-SB06-25'	<10	72	<10	NA	NA
1441-SB06-27'	<10	240	<10	*	<330
1441-SB06-30'	<10	440	<10	NA	<330
1441-SB06-32'	<10	19	<10	ND	<330
1441-SB06-35'	<10	350	<10	NA	<330
1441-SB06-40'	<10	45	<10	NA	NA
1441-SB06-45'	<10	29	<10	NA	NA
1441-SB06-50'	<10	33	<10	NA	NA

Sample ID/Depth	TPH-JF (mg/kg)	TPH-D (mg/kg)	TPH-O (mg/kg)	VOCs (µg/kg)	PNAs (µg/kg)
1441-SB03-5'	<10	<10	<10	NA	NA
1441-SB03-15'	<10	64	41	NA	NA
1441-SB03-22'	<10	120	29	NA	NA
1441-SB03-27'	<10	110	50	NA	NA
1441-SB03-30'	<10	2,400	160	*	*
1441-SB03-35'	<10	430	28	*	<330
1441-SB03-40'	<10	280	23	NA	NA
1441-SB03-44'	<10	380	25	NA	NA
1441-SB03-45'	<10	170	21	NA	NA
1441-SB03-50'	<10	98	85	ND	<330

Sample ID/Depth	TPH-JF (mg/kg)	TPH-D (mg/kg)	TPH-O (mg/kg)	VOCs (µg/kg)	PNAs (µg/kg)
1441-SB01-5'	<10	630	52	ND	<330
1441-SB01-GRAB8'	<10	2,300	320	NA	NA
1441-SB01-10'	<10	1,300	210	*	<330
1441-SB01-15'	<10	480	87	*	<330

Sample ID/Depth	TPH-JF (mg/kg)	TPH-D (mg/kg)	TPH-O (mg/kg)	VOCs (µg/kg)	PNAs (µg/kg)
1441-SB08-5'	<10	240	<10	NA	NA
1441-SB08-11'	<10	560	<10	NA	NA
1441-SB08-15'	<10	45	<10	NA	NA
1441-SB08-20'	<10	1,200	<10	NA	NA
1441-SB08-25'	<10	160	<10	NA	NA
1441-SB08-30'	<10	560	<10	NA	NA
1441-SB08-35'	<10	420	38	ND	<330
1441-SB08-40'	<10	330	44	NA	NA
1441-SB08-45'	<10	300	44	NA	NA
1441-SB08-50'	<10	78	<10	NA	NA
1441-SB08-55'	<10	57	11	ND	<330
1441-SB08-60'	<10	250	99	NA	NA

Sample ID/Depth	TPH-JF (mg/kg)	TPH-D (mg/kg)	TPH-O (mg/kg)	VOCs (µg/kg)	PNAs (µg/kg)
1441-SB05-5'	<10	1,500	73	*	*
1441-SB05-10'	<10	1,000	59	*	*
1441-SB05-14'	<10	370	<10	NA	NA
1441-SB05-19'	<10	120	<10	NA	NA
1441-SB05-24'	<10	130	17	NA	NA
1441-SB05-26'	<10	51	16	ND	<330
1441-SB05-30'	<10	170	21	NA	<330
1441-SB05-35'	<10	82	12	NA	NA
1441-SB05-40'	<10	43	16	NA	NA
1441-SB05-45'	<10	22	19	NA	NA
1441-SB05-50'	<10	85	27	NA	NA
1441-SB05-55'	<10	100	32	NA	NA
1441-SB05-60'	<10	43	29	NA	<330

Sample ID/Depth	TPH-JF (mg/kg)	TPH-D (mg/kg)	TPH-O (mg/kg)	VOCs (µg/kg)	PNAs (µg/kg)
1441-SB02-5'	<10	<10	<10	NA	NA
1441-SB02-6.5'	<10	480	27	NA	NA

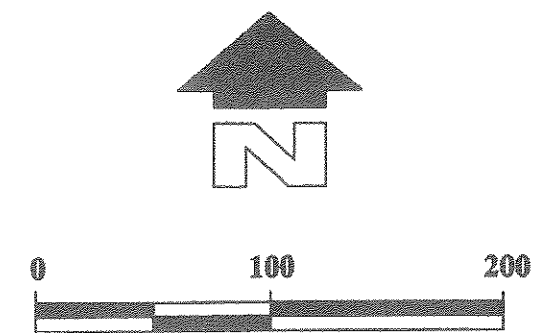
Sample ID/Depth	TPH-JF (mg/kg)	TPH-D (mg/kg)	TPH-O (mg/kg)	VOCs (µg/kg)	PNAs (µg/kg)
1441-SB07-5'	<10	<10	<10	NA	NA
1441-SB07-12'	<10	480	<10	NA	NA
1441-SB07-16'	<10	1,300	<10	NA	NA
1441-SB07-21'	<10	220	<10	NA	NA
1441-SB07-25'	<10	240	<10	NA	NA
1441-SB07-31'	<10	390	<10	NA	NA
1441-SB07-35'	<10	180	<10	NA	NA
1441-SB07-40'	<10	170	<10	NA	NA
1441-SB07-45'	<10	72	<10	NA	NA
1441-SB07-50'	<10	110	<10	NA	<330

Sample ID/Depth	TPH-JF (mg/kg)	TPH-D (mg/kg)	TPH-O (mg/kg)	VOCs (µg/kg)	PNAs (µg/kg)
1441-SB04-5'	<10	940	71	*	<330
1441-SB04-10'	<10	280	14	*	<330
1441-SB04-15'	<10	55	24	NA	NA
1441-SB04-20'	<10	36	18	NA	NA
1441-SB04-25'	<10	77	21	NA	NA
1441-SB04-30'	<10	40	16	*	<330
1441-SB04-35'	<10	120	18	NA	NA
1441-SB04-40'	<10	100	15	NA	NA
1441-SB04-45'	<10	68	12	NA	NA
1441-SB04-47'	<10	13	<10	NA	NA
1441-SB04-52'	<10	27	18	ND	<330

Figure 2-3
1999 SITE ASSESSMENT
SOIL SAMPLE RESULTS
UST SITE 1441

MCB CAMP PENDLETON

SES-TECH



SCALE IN FEET

LEGEND

- SOIL BORING LOCATION
- 1441 BUILDING NUMBER
- ROADWAY
- WATERWAY
- FORMER UST EXCAVATION/LOCATION

NOTES:
VOCs = VOLATILE ORGANIC COMPOUNDS
PNAs = POLYNUCLEAR AROMATIC HYDROCARBONS

ONLY THOSE COMPOUNDS DETECTED
ARE LISTED IN THIS FIGURE

Sample ID/Depth	VOCs (µg/kg)													PNAs (µg/kg)			
	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropylbenzene	Ethylbenzene	Isopropylbenzene	m,p-Xylene	n-Butylbenzene	n-Propylbenzene	Naphthalene	n-Xylene	sec-Butylbenzene	tert-Butylbenzene	Toluene	Acenaphthene	Fluorene	Naphthalene	Phenanthrene
1441-SB 06-10'	<20	<20	46	<5.0	<20	<5.0	70	<20	76	<5.0	72	<20	<5.0	<330	<330	<330	<330
1441-SB 06-14'	<20	100	49	<5.0	27	<5.0	320	<20	250	<5.0	350	25	<5.0	420	530	<330	<330
1441-SB 06-27'	<20	<20	<20	<5.0	<20	<5.0	<20	<20	45	<5.0	<20	<20	<5.0	<330	<330	<330	<330

Sample ID/Depth	VOCs (µg/kg)													PNAs (µg/kg)			
	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropylbenzene	Ethylbenzene	Isopropylbenzene	m,p-Xylene	n-Butylbenzene	n-Propylbenzene	Naphthalene	n-Xylene	sec-Butylbenzene	tert-Butylbenzene	Toluene	Acenaphthene	Fluorene	Naphthalene	Phenanthrene
1441-SB 01-10'	210	110	71	49	34	23	91	64	500	12	66	<20	<5.0	<330	<330	<330	<330
1441-SB 01-15'	31	22	<20	<5.0	<20	<5.0	<20	<20	120	<5.0	<20	<20	<5.0	<330	<330	<330	<330

Sample ID/Depth	VOCs (µg/kg)													PNAs (µg/kg)			
	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropylbenzene	Ethylbenzene	Isopropylbenzene	m,p-Xylene	n-Butylbenzene	n-Propylbenzene	Naphthalene	n-Xylene	sec-Butylbenzene	tert-Butylbenzene	Toluene	Acenaphthene	Fluorene	Naphthalene	Phenanthrene
1441-SB 04-5'	<20	<20	47	<5.0	<20	<5.0	66	<20	<40	<5.0	63	<20	<5.0	<330	<330	<330	<330
1441-SB 04-10'	<20	<20	25	<5.0	<20	<5.0	43	<20	<40	<5.0	32	<20	<5.0	<330	<330	<330	<330
1441-SB 04-30'	<20	<20	<20	<5.0	<20	10	<20	<20	<40	<5.0	<20	<20	9.1	<330	<330	<330	<330

Sample ID/Depth	VOCs (µg/kg)													PNAs (µg/kg)			
	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropylbenzene	Ethylbenzene	Isopropylbenzene	m,p-Xylene	n-Butylbenzene	n-Propylbenzene	Naphthalene	n-Xylene	sec-Butylbenzene	tert-Butylbenzene	Toluene	Acenaphthene	Fluorene	Naphthalene	Phenanthrene
1441-SB 05-5'	1,800	690	560	190	140	170	430	280	590	80	590	<20	<5.0	330	650	490	1,000
1441-SB 05-10'	340	230	220	65	32	34	130	65	320	17	170	<20	<5.0	<330	500	<330	740

Sample ID/Depth	VOCs (µg/kg)													PNAs (µg/kg)			
	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropylbenzene	Ethylbenzene	Isopropylbenzene	m,p-Xylene	n-Butylbenzene	n-Propylbenzene	Naphthalene	n-Xylene	sec-Butylbenzene	tert-Butylbenzene	Toluene	Acenaphthene	Fluorene	Naphthalene	Phenanthrene
1441-SB 03-30'	2,600	780	580	48	290	290	530	470	1,300	110	750	<20	<5.0	1,100	1,400	2,300	3,100
1441-SB 03-35'	52	<20	<20	<5.0	<20	11	39	<20	66	<5.0	24	<20	6.1	<330	<330	<330	<330

Figure 2-4
1999 SITE ASSESSMENT VOC AND PAH
SOIL SAMPLE RESULTS
UST SITE 1441
MCB CAMP PENDLETON
SES-TECH

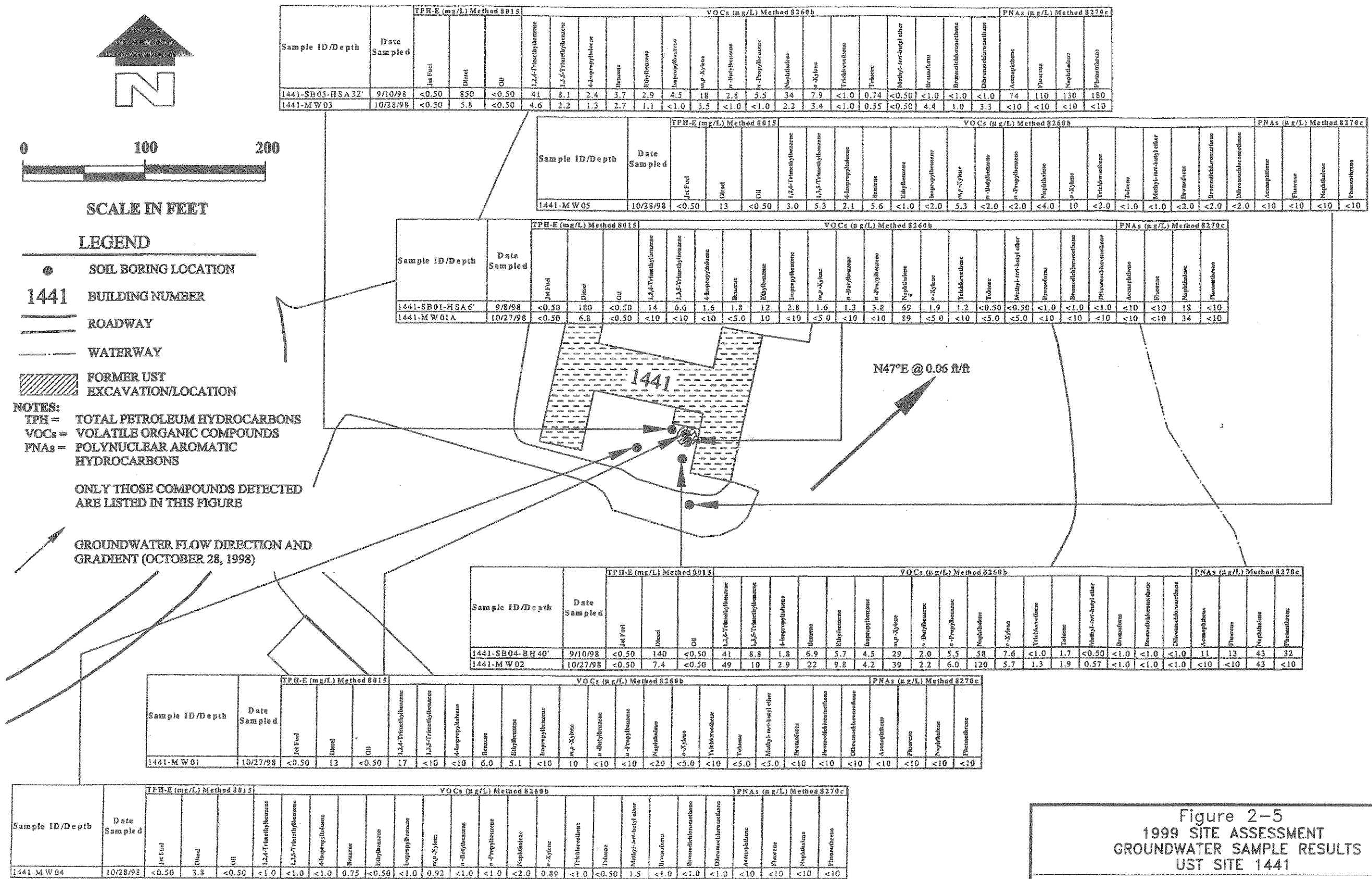
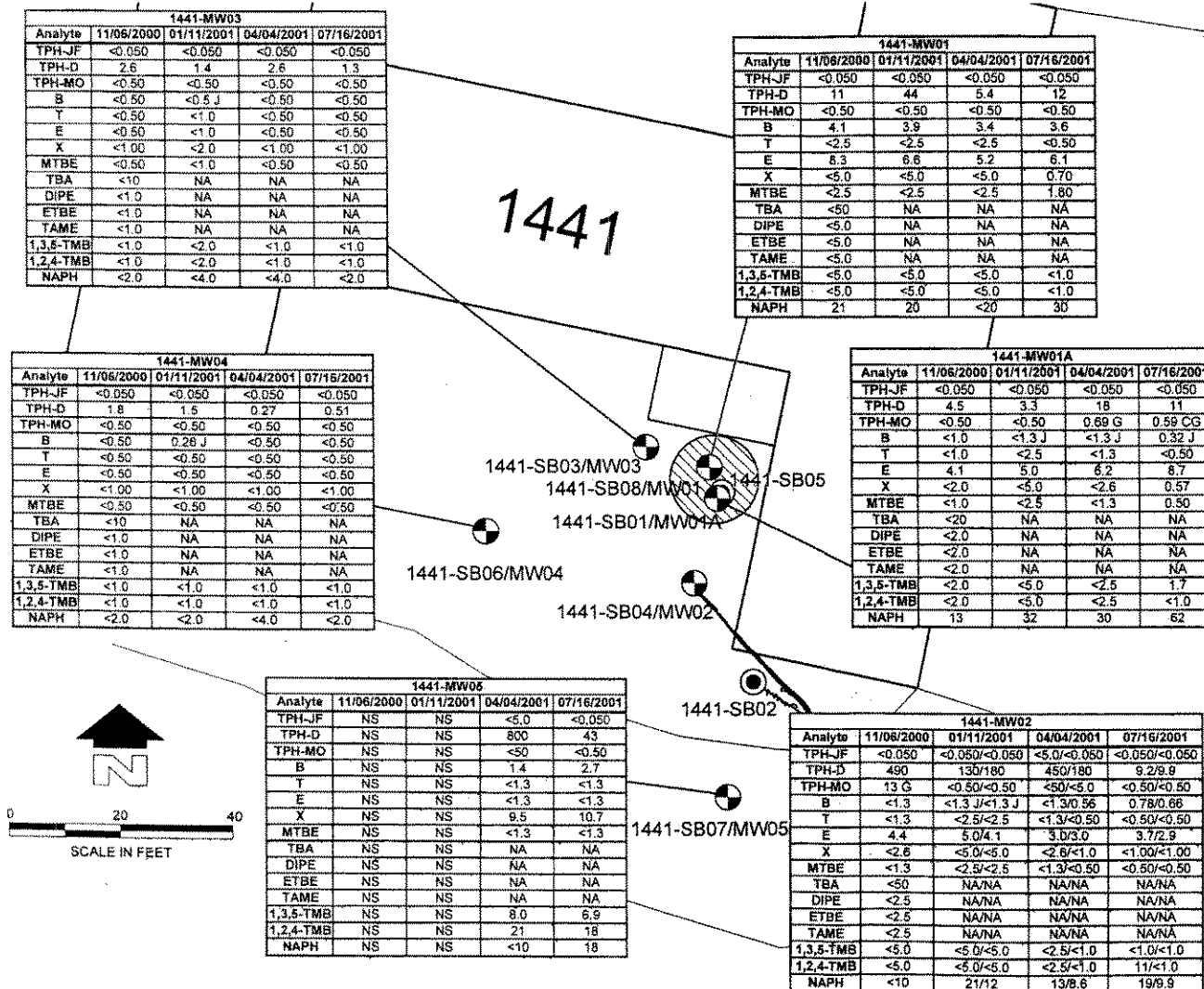


Figure 2-5
1999 SITE ASSESSMENT
GROUNDWATER SAMPLE RESULTS
UST SITE 1441

MCB CAMP PENDLETON

SES-TECH

DRAWN BY: MD	CHECKED BY: MC	APPROVED BY: MC	DCN: SES-TECH-06-0072	DRAWING NO:
DATE: 03/31/06	REV: REVISION 0	CTO: #003	06007226.DWG	

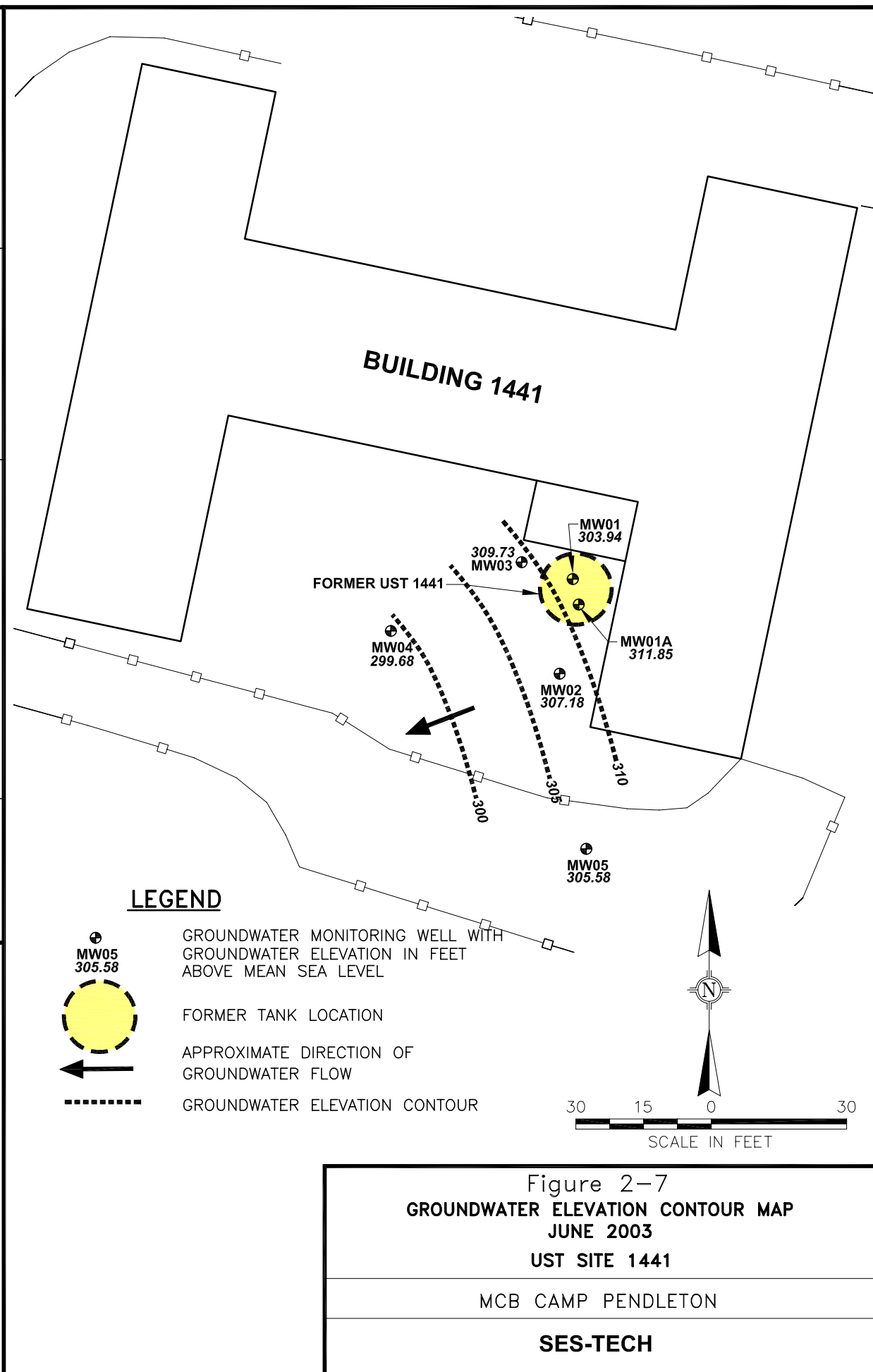


LEGEND

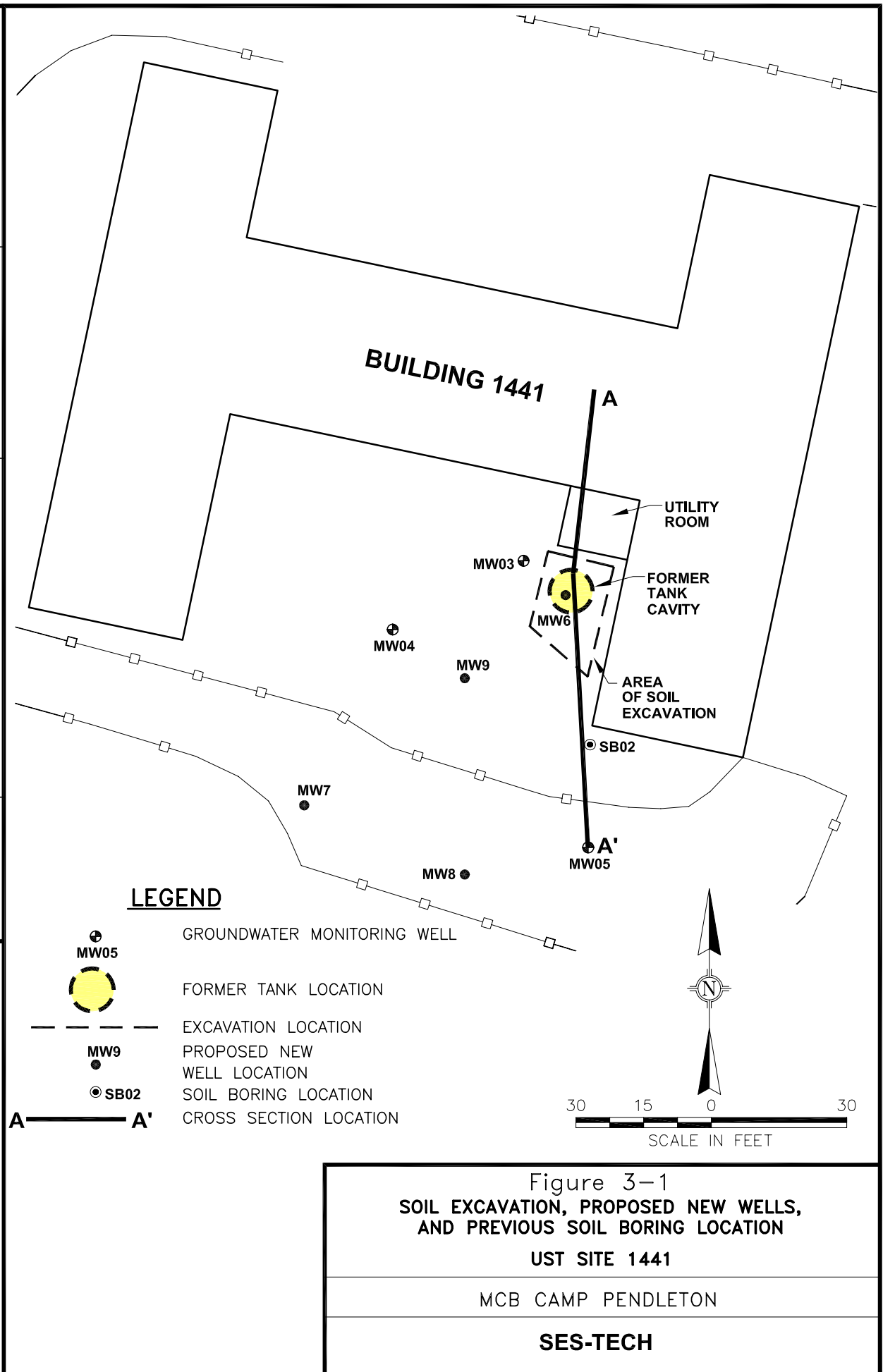
- MONITORING WELL (BATTELLE)
- SOIL BORING LOCATION (BATTELLE)
- ▨ FORMER UST EXCAVATION LOCATION
- TPH-JF TOTAL PETROLEUM HYDROCARBONS EXTRACTABLE AS JET FUEL (mg/L)
- TPH-D TOTAL PETROLEUM HYDROCARBONS EXTRACTABLE AS DIESEL FUEL (mg/L)
- TPH-MO TOTAL PETROLEUM HYDROCARBONS EXTRACTABLE AS MOTOR OIL (mg/L)
- BTEX B= BENZENE, T= TOLUENE, E= ETHYLBENZENE, X= TOTAL XYLENES (µg/L)
- MTBE METHYL-TERT-BUTYL ETHER (µg/L)
- TMB TRIMETHYLBENZENE (µg/L)
- NAPH NAPHTHALENE (µg/L)
- TBA TERTIARY-BUTYL ALCOHOL (µg/L)
- DIPE DI-ISOPROPYL ETHER (µg/L)
- ETBE ETHYL-TERTIARY-BUTYL ETHER (µg/L)
- TAME TERTIARY-AMYL-METHYL ETHER (µg/L)
- C REPORTED CONCENTRATION INCLUDES ADDITIONAL COMPOUND UNCHARACTERISTIC OF COMMON FUELS AND LUBRICANTS
- G COMPOUNDS OUTSIDE THE RANGE OF DIESEL HAVE VARYING AMOUNTS OF RECOVERY
- NS NOT SAMPLED
- J ESTIMATED
- NA NOT ANALYZED

Figure 2-6
 2000 TO 2001 QUARTERLY
 GROUNDWATER SAMPLE RESULTS
 UST SITE 1441
 MCB CAMP PENDLETON
 SES-TECH

DRAWN BY: MD	CHECKED BY: MC	APPROVED BY: MC	DCN: SES-TECH-06-0072	DRAWING NO: 06007227.DWG
DATE: 03/31/06	REV: REVISION 0		CTO: #003	



DRAWN BY: MD	CHECKED BY: MC	APPROVED BY: MC	DCN: SES-TECH-06-0072	DRAWING NO: 06007231.DWG
DATE: 03/31/06	REV: REVISION 0		CTO: #003	



DRAWN BY: MD	CHECKED BY: MC	APPROVED BY: MC	DCN: SES-TECH-06-0072	DRAWING NO:
DATE: 03/31/06	REV: REVISION 0	CTO: #003	06007232.DWG	

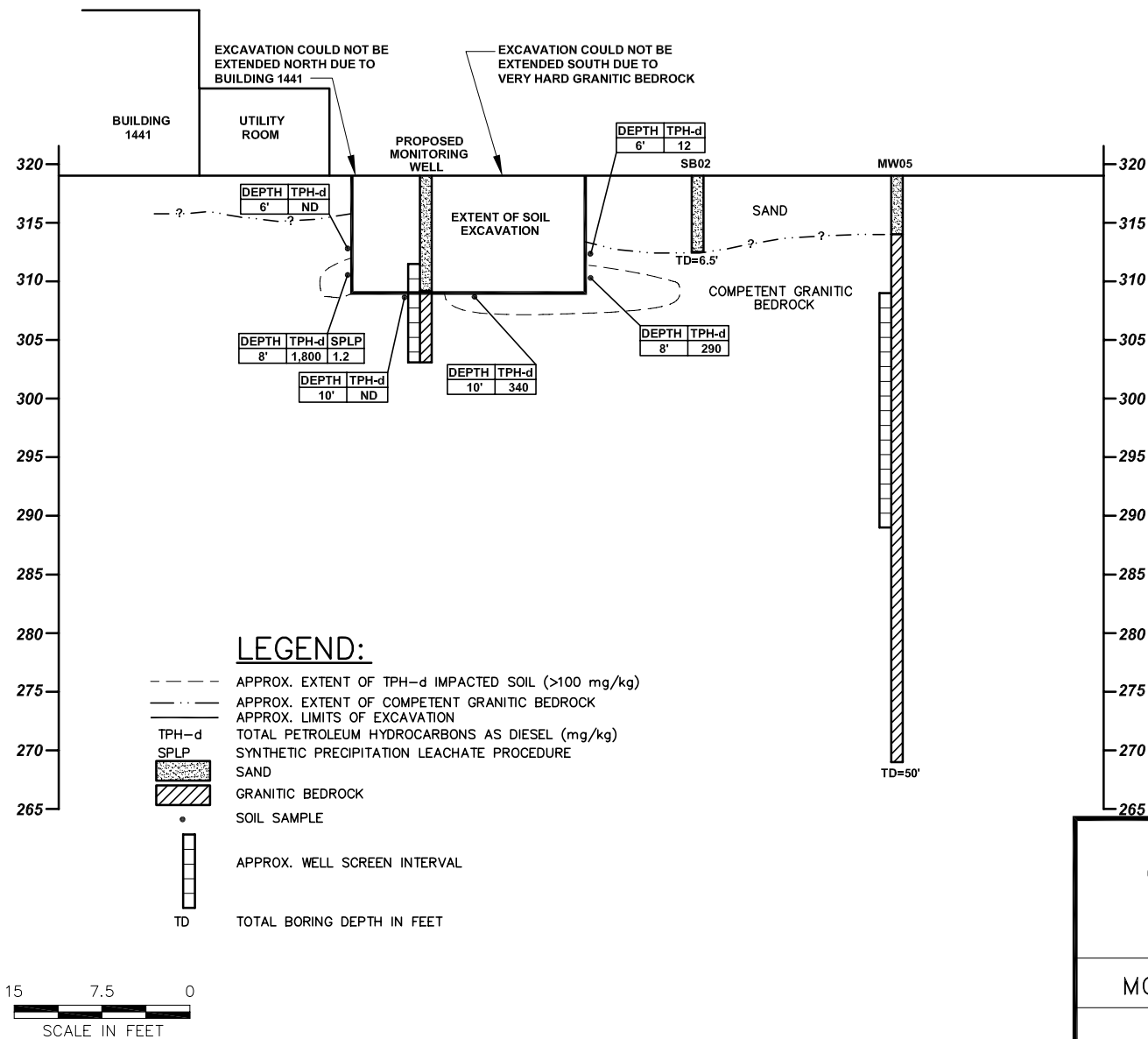


Figure 3-2
CROSS SECTION A-A'

UST SITE 1441

MCB CAMP PENDLETON

SES-TECH

APPENDIX A

WELL ABANDONMENT PERMIT



TETRA TECH EC, INC.

February 10, 2006

Monitoring Well Permit Clerk
Site Assessment and Mitigation Program
County of San Diego, Department of Environmental Health
P.O. Box 129261
San Diego, CA 92112-9261

Subject: **Well Destruction Permit Protocol**
UST Sites 14137, 14131, and 1441, MCB Camp Pendleton

Reference: Permit Number LMON103667, January 6, 2006

Well Permit Clerk:

Tetra Tech EC is submitting this letter in fulfillment of the conditions of boring permit number LMON 103667 issued on January 6, 2006, for work at the following project:

Property Owner: United States Marine Corps
Site Address: Building 22165, MCB Camp Pendleton, California 92055
Contact Person: Mr. Chet Storrs
Assistant Chief of Staff, Environmental Security

On January 27 & 30, 2006, Tetra Tech EC observed the destruction of five 4-inch diameter groundwater monitoring wells, one at Site 14137, one at Site 14131, and three at Site 1441 (A.P.N. #101-520-14-00). The following is a summary of work conducted, including a description of the destruction method, and the type and volume of backfill materials used.

At each of the five wells, the well box was removed before overdrilling began. An 8-inch hollow stem auger was then used to drill the entire depth of each well, with the cuttings being drummed and sent off-site for disposal. Once the wells were overdrilled, the well casings were removed and backfilling began. The approximate volumes of each borehole and the backfill material (in cubic feet) are as follows:

Site 14137

MW4:

Volume of borehole to 20 feet: 6.9 cubic feet (ft³)

Volume of backfill: 6 ft³ bentonite grout + 1 ft³ hydrated bentonite chips on top = 7 ft³ backfill



1940 S. Deane Avenue, Suite 200, Santa Ana, CA 92705
Tel 949.756.7520 Fax 949.756.7560
www.tetatec.com



TETRA TECH EC, INC.

Site 14131

MW4

Volume of borehole to 15 feet: 5.2 ft^3

Volume of backfill: 4.5 ft^3 bentonite grout + 1 ft^3 hydrated bentonite chips on top = 5.5 ft^3 backfill

Site 1441

During the destruction of the wells at Site 1441, very difficult drilling conditions were encountered. The predominant lithology at the site consists of decomposed granite (bedrock). Due to these conditions, the original boreholes were installed using an air-rotary drilling method, and while attempting to overdrill using a hollow-stem auger rig with an 8-inch auger, refusal was met at an approximate depth of 10 feet. The boreholes were therefore overdrilled to depth using a 6-inch auger.

MW1:

Volume of borehole to 38 feet: 8.9 ft^3

Volume of backfill: 8 ft^3 bentonite grout + 1 ft^3 hydrated bentonite chips on top = 9 ft^3 backfill

MW1a:

Volume of borehole to 15 feet: 4.5 ft^3

Volume of backfill: 4 ft^3 bentonite grout + 1 ft^3 hydrated bentonite chips on top = 5 ft^3 backfill

MW2:

Volume of borehole to 30 feet: 7.4 ft^3

Volume of backfill: 6.5 ft^3 bentonite grout + 1 ft^3 hydrated bentonite chips on top = 7.5 ft^3 backfill

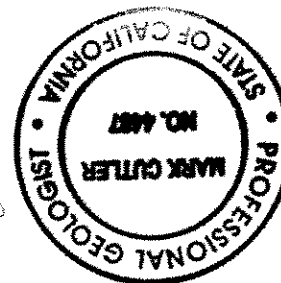
To summarize, the volume of backfill material placed in each borehole exceeded the calculated volume of that borehole, indicating the boreholes were adequately abandoned.

If you have any questions, please contact me at (949) 756-7526.

Sincerely,

Tetra Tech EC

Mark Cutler, P.G.
Project Manager



Attachments: Well Location Map
Copy of Permit



1940 E. Deere Avenue, Suite 200, Santa Ana, CA 92705
Tel 949 756 7500 Fax 949 756 7560
www.tetatech.com



PERMIT #LMON103667
A.P.N. #101-520-14-00
EST #H05939-266/267/306

**COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION
MONITORING WELL PROGRAM**

MONITORING WELL AND BORING CONSTRUCTION AND DESTRUCTION PERMIT

SITE NAME: BUILDINGS 14137, 14131, 1441

SITE ADDRESS: AREA 14, MARINE CORPS BASE, CAMP PENDLETON

PERMIT TO: **INSTALL 6 & DESTROY 5 GROUNDWATER MONITORING WELLS**

PERMIT APPROVAL DATE: JANUARY 6, 2006

PERMIT EXPIRES ON: MAY 6, 2006

RESPONSIBLE PARTY: U.S. MARINE CORPS, CAMP PENDLETON

PERMIT CONDITIONS:

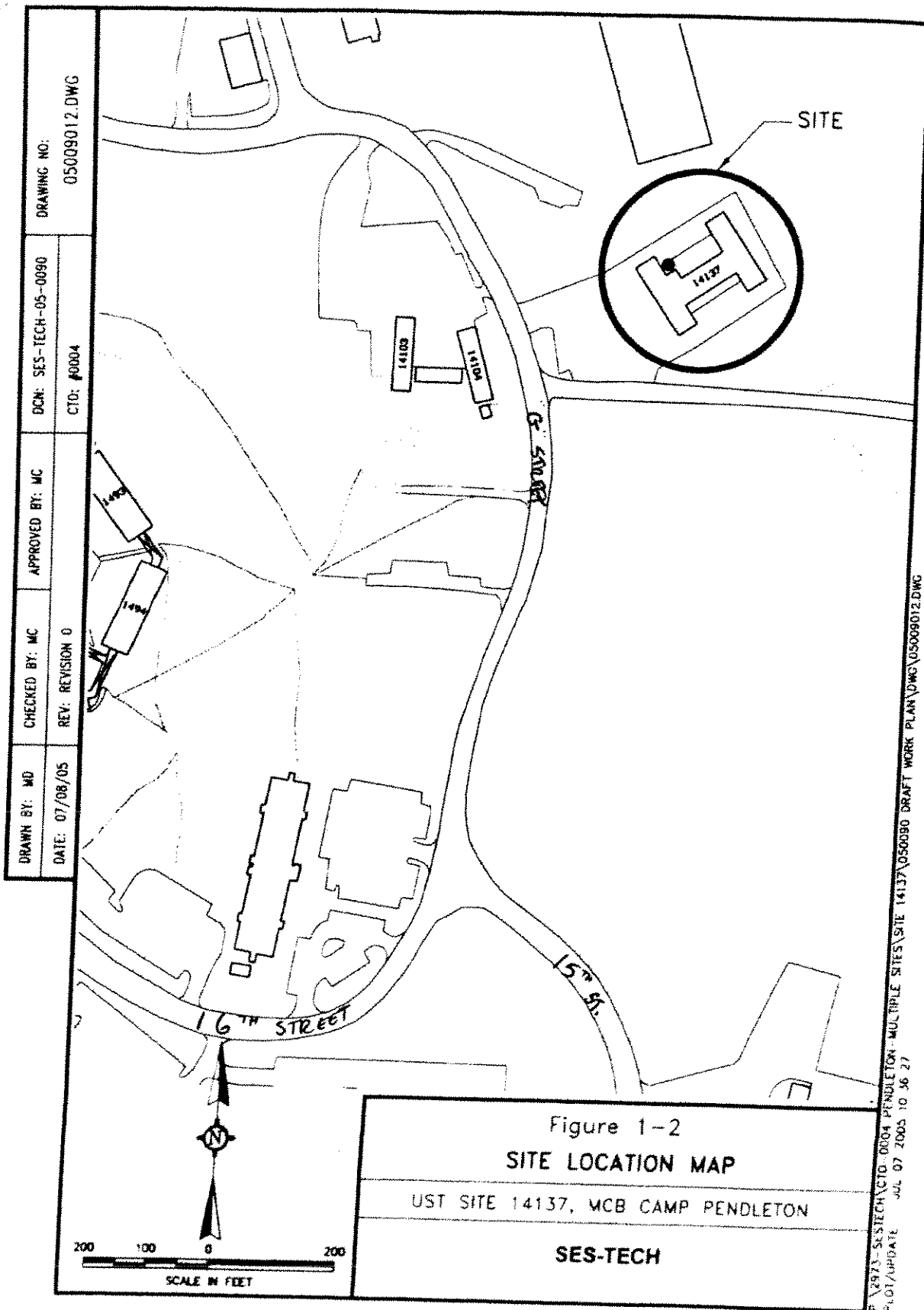
1. Each of the monitoring wells must be constructed with a minimum annular seal of 5 feet and a maximum screened interval of 15 feet.
2. Contact the Regional Water Quality Control Board for their comments and concerns prior to commencing field activities.
3. Wells must have a **minimum 3-foot concrete surface seal**. The surface seal shall consist of concrete able to withstand the maximum anticipated load without cracking or deteriorating. The concrete should meet Class A specifications of a minimum 4000-pound compressive strength.
4. **For the well destructions, all material within the original borehole, which includes the casing, filterpack and annular seal, must be removed. The borehole must be completely filled with an approved sealing material as specified in Department of Water Resources Bulletin 74-90.**
5. All water and soil resulting from the activities covered by this permit must be managed, stored and disposed of as specified in the SAM Manual in Section 5, II, E- 4. (http://www.sdcountry.ca.gov/deh/lwq/sam/manual_guidelines.html). In addition, drill cuttings must be properly handled and disposed in compliance with the Stormwater Best Management Practices of the local jurisdiction.
6. Within 60 days of completing work, submit a well construction report, including all well and/or boring logs and laboratory data to the Well Permit Desk. This report must include all items required by the SAM Manual, Section 5, Pages 6 & 7.
7. This office must be given 48-hour notice of any drilling activity on this site and advanced notification of drilling cancellation. Please contact the Well Permit Desk at 338-2339.

APPROVED BY: _____

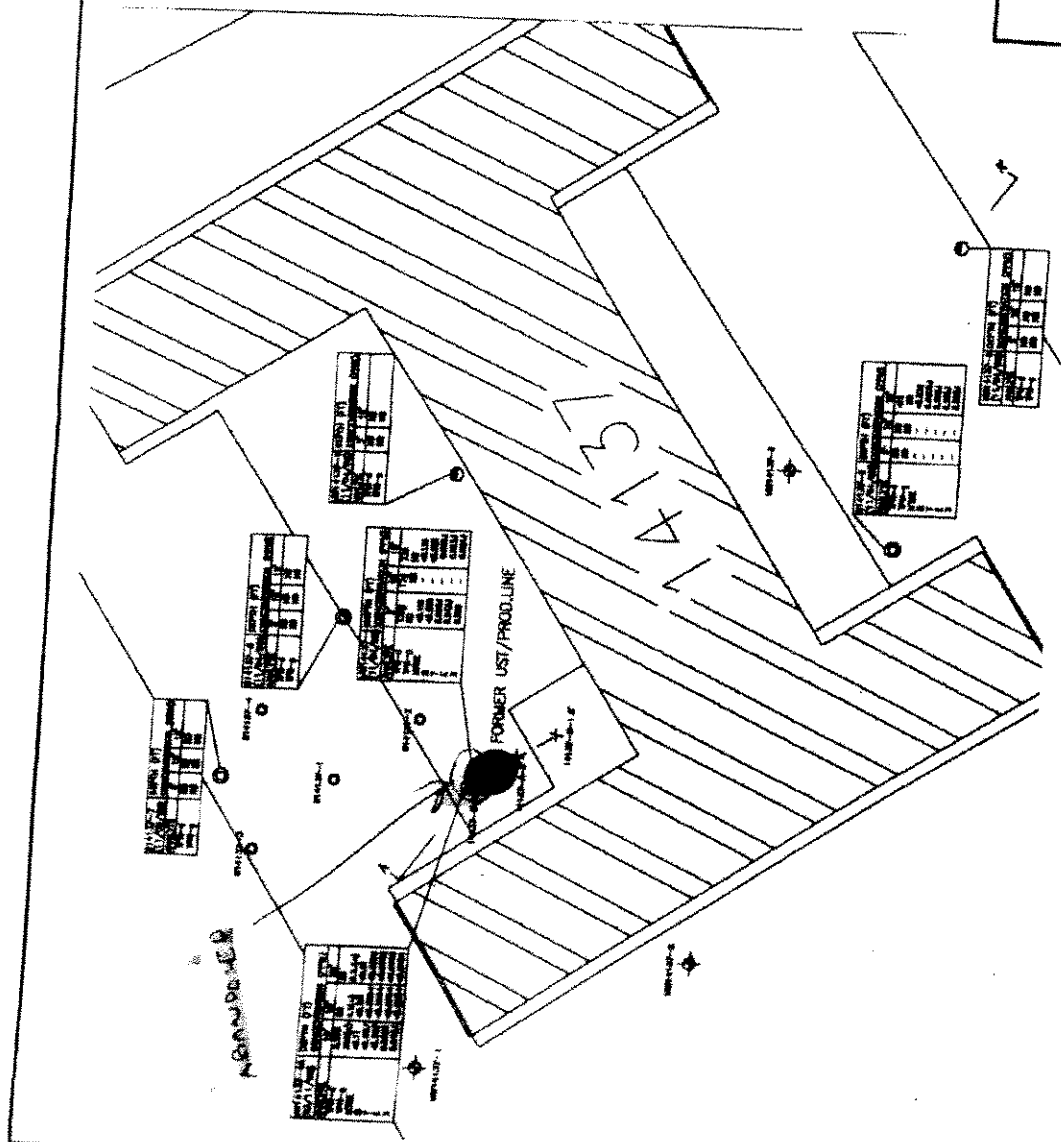
KEVIN HEATON

DATE: 01/06/2006

NOTIFIED: by email 1/6/06 max
DEH-SAM-9075 (3/05)



DATE: 07/26/02	BY: [signature]	REV: 0004
DRAWN BY: [signature]	CHECKED BY: [signature]	APPROVED BY: [signature]
DTD: 0004 DOW: 001-100-0000 DRAWING NO: 050090022 DWT		



LEGEND

- UST REMOVAL SOIL SAMPLE (SEE FIGURE 3)
- BORING BY SOTA (1988 AND 2000)
- MONITORING WELL BY JEG/TI (1982) (SEE FIGURE 3)
- SOTA MONITORING WELL (1988)
- BORING LOCATIONS BY JEG/TI (1981 AND 1982) (SEE FIGURE 3)

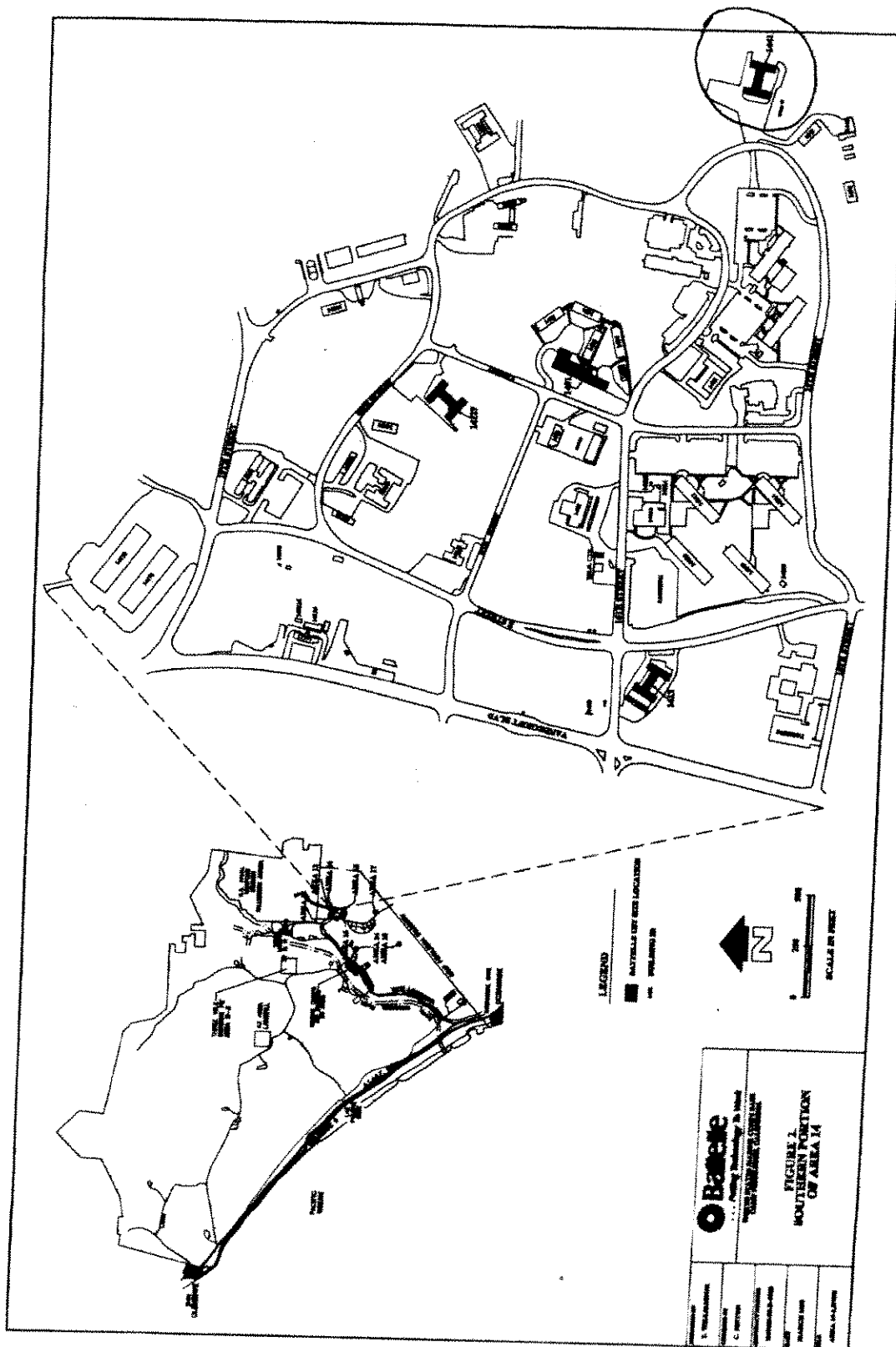
SOIL SAMPLE DEPTH AND ANALYTICAL RESULTS (in parentheses per laboratory (PPM))

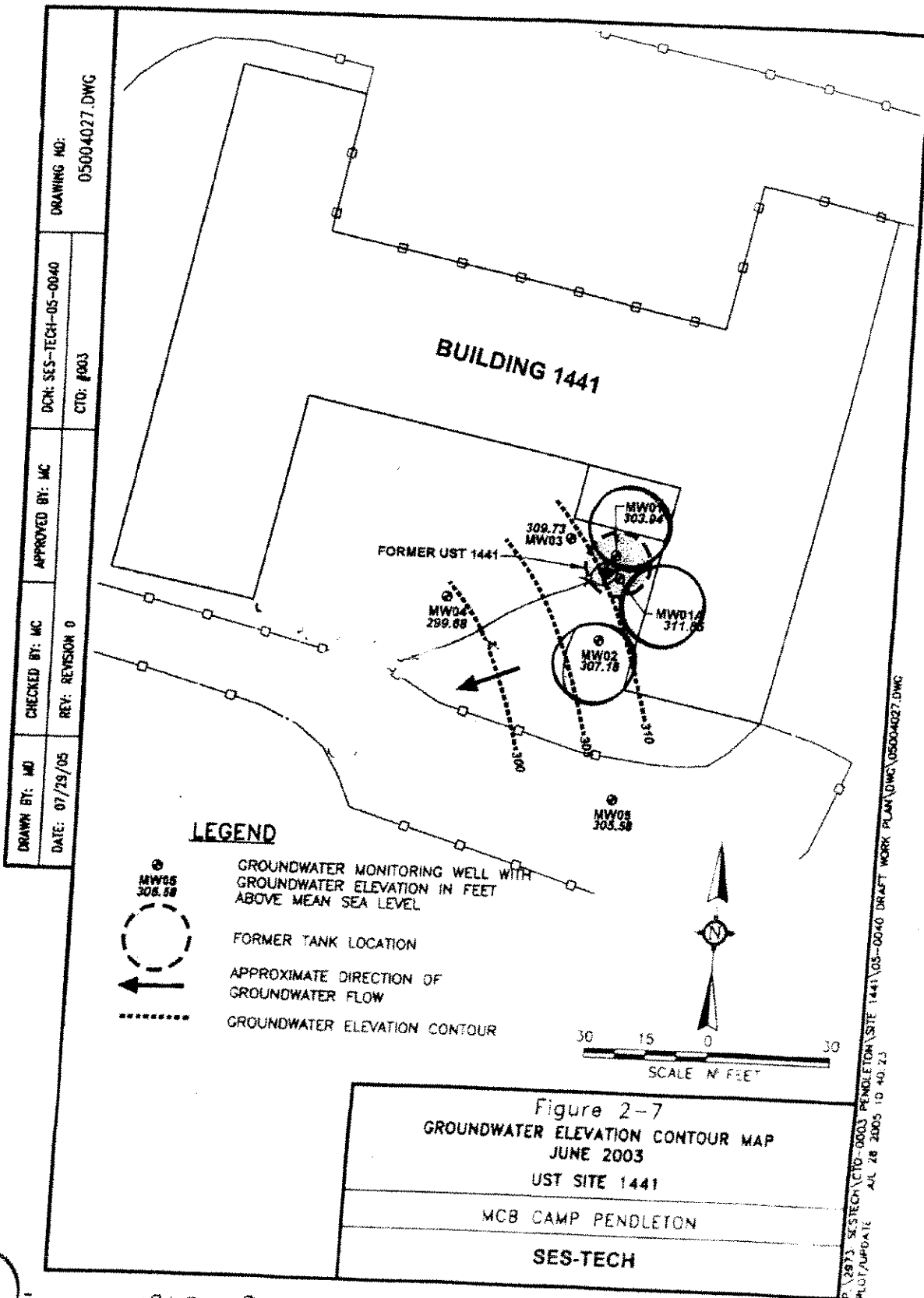
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Figure 2-2
HISTORICAL SOIL SAMPLING RESULTS,
SOTA ENVIRONMENTAL (2001)
UST SUE 14137, MCB CAMP PENDLETON
SES-TECH





P:\2873 SES-TECH\CTD-0003 PENDLETON\SITE 1441\05-0040 DRAFT WORK PLAN.DWG\05004027.DWG
 PLOT/UPDATE JUL 28 2005 10:40:23



PERMIT #LMON103667
A.P.N. #101-520-14-00
EST #H05939-266/267/306

**COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION
MONITORING WELL PROGRAM**

MONITORING WELL AND BORING CONSTRUCTION AND DESTRUCTION PERMIT

SITE NAME: BUILDINGS 14137, 14131, 1441

SITE ADDRESS: AREA 14, MARINE CORPS BASE, CAMP PENDLETON

PERMIT TO: **INSTALL 6 & DESTROY 5 GROUNDWATER MONITORING WELLS**

PERMIT APPROVAL DATE: JANUARY 6, 2006

PERMIT EXPIRES ON: MAY 6, 2006

RESPONSIBLE PARTY: U.S. MARINE CORPS, CAMP PENDLETON

PERMIT CONDITIONS:

1. Each of the monitoring wells must be constructed with a minimum annular seal of 5 feet and a maximum screened interval of 15 feet.
2. Contact the Regional Water Quality Control Board for their comments and concerns prior to commencing field activities.
3. Wells must have a **minimum 3-foot concrete surface seal**. The surface seal shall consist of concrete able to withstand the maximum anticipated load without cracking or deteriorating. The concrete should meet Class A specifications of a minimum 4000-pound compressive strength.
4. **For the well destructions, all material within the original borehole, which includes the casing, filterpack and annular seal, must be removed. The borehole must be completely filled with an approved sealing material as specified in Department of Water Resources Bulletin 74-90.**
5. All water and soil resulting from the activities covered by this permit must be managed, stored and disposed of as specified in the SAM Manual in Section 5, II, E- 4, (http://www.sdcountry.ca.gov/deh/lwg/sam/manual_guidelines.html). In addition, drill cuttings must be properly handled and disposed in compliance with the Stormwater Best Management Practices of the local jurisdiction.
6. Within 60 days of completing work, submit a well construction report, including all well and/or boring logs and laboratory data to the Well Permit Desk. This report must include all items required by the SAM Manual, Section 5, Pages 6 & 7.
7. This office must be given 48-hour notice of any drilling activity on this site and advanced notification of drilling cancellation. Please contact the Well Permit Desk at 338-2339.

APPROVED BY: _____

KEVIN HEATON

DATE: 01/06/2006

NOTIFIED: *by email 1/6/06 msx*
DEH:SAM-9075 (3/05)



COUNTY OF SAN DIEGO

DEPARTMENT OF ENVIRONMENTAL HEALTH
1255 Imperial Avenue, 3rd Floor
San Diego, CA 92101
(619)338-2228

Page 1 of 1

RECEIPT NUMBER: 05-98625
Cashier: MALCANTA

APN: 101-520-14-00
DATE ISSUED: 27-DEC-2005
PERMIT: LMON T103667
SCOPE: COMBINATION OF BORINGS, DEST, WELLS
SITE ADDRESS: AREA 14, BLDG 14131
SUBDIVISION:
CITY: Camp Pendleton, CA 92055

PARCEL OWNER: UNITED STATES OF AMERICA(CAMP P
ADDRESS: PUBLIC AGENCY
CITY/STATE/ZIP: , 00000
PERMIT OWNER:
ADDRESS:
CITY/STATE/ZIP:

Fees Calculated 12 Months Back

Date	Fee Code	Description	Paid to Date	This Receipt	Balance Due
17-DEC-2005	6LW25-EHO	MONITORING WELL	\$0.00	\$185.00	\$0.00
17-DEC-2005	6LW25-ZCRO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	\$0.00	-\$18.50	\$0.00
17-DEC-2005	6LWAD-EHO	ADDITIONAL WELL DESTRUCTION	\$0.00	\$600.00	\$0.00
17-DEC-2005	6LWAD-ZCRO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	\$0.00	-\$60.00	\$0.00
17-DEC-2005	6LWAM-EHO	ADDITIONAL MONITORING WELL	\$0.00	\$800.00	\$0.00
17-DEC-2005	6LWAM-ZCRO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	\$0.00	-\$80.00	\$0.00
17-DEC-2005	6LWMAINEHO	WELL MAINTENANCE FEE	\$0.00	\$100.00	\$0.00
17-DEC-2005	6LWMAINEZCO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	\$0.00	-\$10.00	\$0.00
17-DEC-2005	6LWMAIXEHO	ADDITIONAL WELL MAINTENANCE FEE	\$0.00	\$150.00	\$0.00
17-DEC-2005	6LWMAIXZCO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	\$0.00	-\$15.00	\$0.00

Totals:

\$1,651.50 \$0.00

Payment Code	Description
CHECK	90

Amount
\$1,651.50

Tendered: \$1,651.50
Change: \$0.00
Balance Due: \$0.00



**PERMIT APPLICATION
GROUNDWATER
AND VADOSE MONITORING WELLS
AND EXPLORATORY OR TEST BORINGS**

RWQCB

OFFICE USE ONLY

PERMIT LMON # 103667

SAM CASE # 105939

DATE RECEIVED: _____

FEE PAID: \$1651.50

CHECK # 90

A. RESPONSIBLE PARTY Marine Corps Base Camp Pendleton Phone (760) 725-9774
(The person, persons, or company responsible for the construction, maintenance, and destruction of the proposed borings and/or wells.)

Mailing Address Building 22165, Area 22 City Camp Pendleton State CA Zip 92055-5008

Contact Person Chet Storrs, AC/S Environmental Security Phone (760) 725-9774 ext. _____

B. SITE ASSESSMENT PROJECT NUMBER-IF APPLICABLE # H05939- 266, 267 & 306

C. CONSULTING FIRM Tetra Tech EC

Mailing Address 1940 East Deere Ave., Suite 200 City Santa Ana State CA Zip 92705

Registered Professional Mark Cutler Registration # 4487 (RG, RCE, CEG)

Contact Person Tania Turpijn-Keasler Phone (949) 212-0681 Fax (760) 430-0738

DRILLING COMPANY West Hazmat Drilling Corp C57 # 819548 Phone 619-686-5800 Fax 619-686-5809

Mailing Address 3620 Kurtz Street City San Diego State CA Zip 92110

E. CONSTRUCTION INFORMATION

**TYPE OF WELLS/
BORINGS TO BE
CONSTRUCTED**

- # _____
- ☒ Groundwater 6
- ☐ Vadose _____
- ☐ Boring _____
- ☐ Other _____

**NUMBER OF WELLS
TO BE DESTROYED #**

☒ 5

**MATERIALS TO BE USED
CASING**

Not Applicable _____

Type PVC

Gauge SCH 40

Diameter 4"

Well Screen Size 0.010

Filter Pack # 2-16 sand

**SEAL/BORING
BACKFILL**

☐ Neat Cement

☐ Cement & Bentonite

☐ Sand-Cement

☒ Bentonite

☐ Other _____

Borehole diameter 8-inch

Drilling Method

☒ Auger

☐ Mud Rotary

☐ Percussion

☒ Air Rotary

☐ Other _____

PROPOSED CONSTRUCTION

Estimated groundwater depth 7-18 ft.

Estimated depth of borings 15-35 ft.

Cement Seal 0 to 3 feet bgs

Bentonite Seal 3 feet bgs to 2 feet
above screen

Filter Pack 2 feet above screen
to total depth

Perforation 15 feet

NOTE:

**Attach a well construction diagram
for wells with multiple completions.**

I agree to comply with the requirements of the current Site Assessment and Mitigation Manual, and with all ordinances and laws of the County of San Diego and the State of California pertaining to well/boring construction and destruction.

DRILLER'S SIGNATURE _____

DATE 12/24/05

Within 60 days of completion, I will furnish the Monitoring Well Permit Desk with a complete and accurate well/boring log. I will certify the design and construction/or destruction of the well/borings in accordance with the permit application.

RG/RCE/CEG SIGNATURE _____

DATE 12/24/05

F. SITE INFORMATION

1. ASSESSOR'S PARCEL NUMBER 101-000-000

Site Name Marine Corps Base Camp Pendleton, California, UST Site

Site Address Building 14137, Area 14 City Camp Pendleton Zip 92055-

PROPERTY OWNER United States Marine Corps, AC/S Environmental Security

Phone (760) 725-9774

Ext. _____

Fax _____

Mailing Address Building 22165, Area 22

City Camp Pendleton

State CA

Zip 92055-5008

NUMBER OF WELLS 1 abandonment / 1 install **TYPE OF WELLS** Groundwater

2. ASSESSOR'S PARCEL NUMBER 101-000-000

Site Name Marine Corps Base Camp Pendleton

Site Address Building 14131, Area 14 City Camp Pendleton Zip 92055-

PROPERTY OWNER United States Marine Corps, AC/S Environmental Security

Phone (760) 725-9774

Ext. _____

Fax _____

Mailing Address Building 22165, Area 22

City Camp Pendleton

State CA

Zip 92055-5008

NUMBER OF WELLS 1 abandonment / 1 install **TYPE OF WELLS** Groundwater

3. ASSESSOR'S PARCEL NUMBER 101-000-000

Site Name Marine Corps Base Camp Pendleton

Site Address 1441, Area 14 City Camp Pendleton Zip _____

PROPERTY OWNER United States Marine Corps, AC/S Environmental Security

Phone (760) 725-9774

Ext. _____

Fax _____

Mailing Address Building 22165, Area 22

City Camp Pendleton

State CA

Zip 92055-5008

NUMBER OF WELLS 3 abandonments / 4 install **TYPE OF WELLS** Groundwater

4. ASSESSOR'S PARCEL NUMBER _____

Site Name _____

Site Address _____ City _____ Zip _____

PROPERTY OWNER _____

Phone _____

Ext. _____

Fax _____

Mailing Address _____

City _____

State _____

Zip _____

NUMBER OF WELLS _____

TYPE OF WELLS _____

14 Area

Permit Fees In Effect for July 1, 2005 - June 30, 2006

2990.00 30.0007

G. FEES (in effect beginning July 1, 2005, through June 30, 2006)

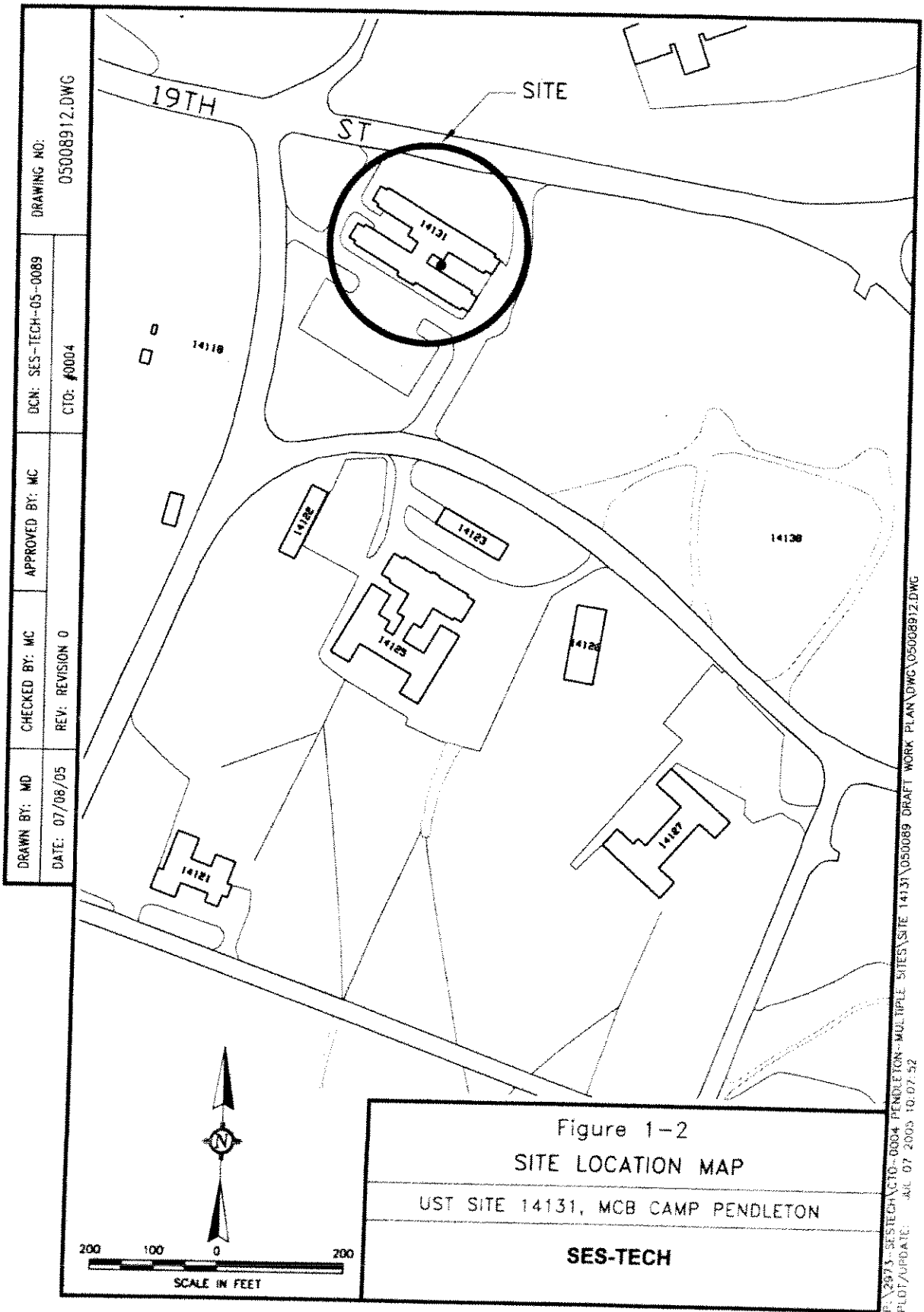
The County Board of Supervisors authorized a 10% credit, for the Fiscal Year ending June 30, 2006, to be applied to the Department of Environmental Health customers. This credit is being provided to qualified fee-based programs that have contributed to the cost reduction/cost containment/cost avoidance efforts initiated by the Department. This fee adjustment, for the Fiscal Year ending June 30, 2006, is applicable to fees and permits due and/or obtained during this period. The 10% is not applicable to enforcement fees or fees relating to non-compliance of permit regulations.

ACTIVITY	FEE SCHEDULE FEE - ONE-TIME FISCAL YEAR 10% CREDIT	AMOUNT
Permit for Well Installations Only (Groundwater Monitoring Wells, Vadose, Vapor Extraction Wells)	\$185.00 for the first monitoring well $\$185.00 - 10\% < \$18.50 > =$	<u>1</u> x \$166.50 \$
Permit for Well Maintenance Inspection (Valid for three years)	\$100.00 for first well maintenance inspection $\$100.00 - 10\% < \$10.00 > =$	<u>1</u> x \$ 90.00 \$
Each Additional New Well	\$160.00 for each additional well installation $\$160.00 - 10\% < \$16.00 > =$ \$ 30.00 for each additional well maintenance inspection $\$ 30.00 - 10\% < \$ 3.00 > =$	<u> </u> x \$144.00 \$ <u> </u> x \$ 27.00 \$
Permit for Borings Only (CPT's, Hydropunch, Geoprobos, Temporary Well Points, etc.)	\$185.00 for the first boring $\$185.00 - 10\% < \$18.50 > =$ \$ 50.00 for each additional boring $\$ 50.00 - 10\% < \$ 5.00 > =$	<u>1</u> x \$166.50 \$ <u> </u> x \$ 45.00 \$
Permit for Well Destructions Only	\$185.00 for the first destruction $\$185.00 - 10\% < \$18.50 > =$ \$120.00 for each additional destruction $\$120.00 - 10\% < \$12.00 > =$	<u>1</u> x \$166.50 \$ <u> </u> x \$108.00 \$
Permit for any Combination of Well Installations, Borings, & Destructions (except UST backfill permit) Permit for any Combination of Well Installations, Borings, & Destructions (except UST backfill permit)	The first activity will be \$185.00. $\$185.00 - 10\% < \$18.50 > =$ Additional activities will be as follows: \$160.00 for each additional well $\$160.00 - 10\% < \$16.00 > =$ \$100.00 for first well maintenance inspection $\$100.00 - 10\% < \$10.00 > =$ \$ 30.00 for each additional well maintenance inspection $\$ 30.00 - 10\% < \$ 3.00 > =$ \$ 50.00 for each additional boring $\$ 50.00 - 10\% < \$ 5.00 > =$ \$120.00 for each well destruction $\$120.00 - 10\% < \$12.00 > =$	<u>1</u> x \$166.50 \$166.50 <u>5</u> x \$144.00 \$720.00 <u>1</u> x \$ 90.00 \$ 90.00 <u>5</u> x \$ 27.00 \$135.00 <u> </u> x \$ 45.00 \$ <u>5</u> x \$108.00 \$540.00
	TOTAL COST OF PERMIT	\$4651.50
Permit for Underground Storage Tank Monitoring System in Backfill (i.e. Enhanced Leak Detection)	(Flat Fee) $\$320.00 - 10\% < \$32.00 > =$	\$288.00

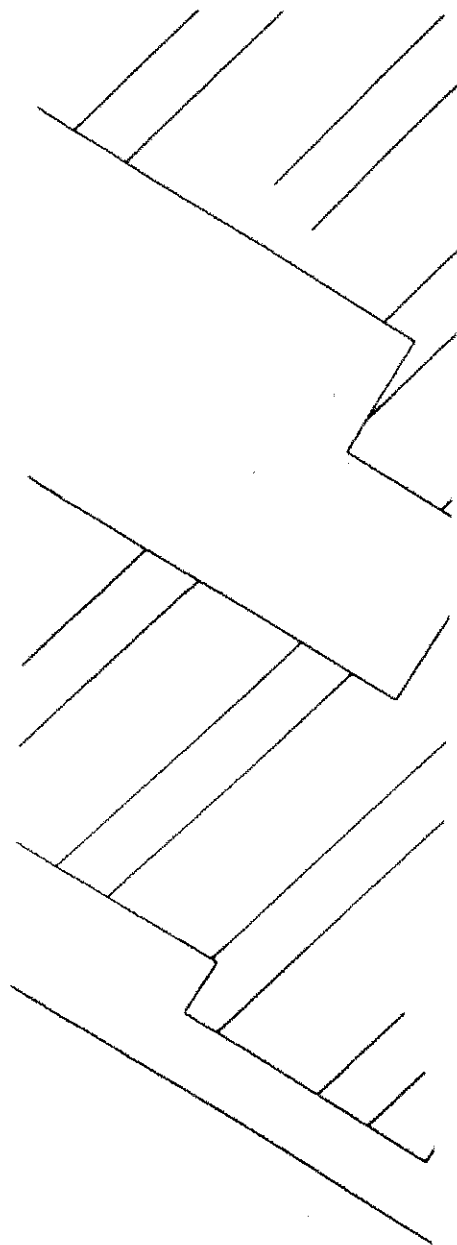
H. **QUESTIONNAIRE:** Please answer all applicable questions completely. For well destructions, complete only #1 below and submit any required supportive documentation.

1. If wells are to be destroyed, provide a description of method of destruction Overdrilling with hollow-stem auger, followed by backfilling using a tremie pipe to the surface with hydrated bentonite chips. Removal of existing well box.
2. What is the purpose of the well/boring investigation?
 - ☒ a. Part of an ongoing site assessment case in which DEH or another government regulator is the lead agency.
 - ☐ b. Part of a Phase I investigation for property ownership transfer or: _____
 - ☐ c. Geotechnical investigation for proposed construction, land stabilization or:
 - ☐ d. Other: _____
3. What procedures will be used to prevent the well/boring from providing an avenue to contamination during construction? All drilling equipment will be decontaminated prior to drilling each borehole.
4. What field procedures will be utilized to determine if contamination exists? photo-ionization detector
5. What procedures will be used to determine whether samples will be sent for laboratory testing or archiving? No samples will be sent to the laboratory.
6. What constituents will be monitored and tested (Include EPA Laboratory Test Methods to be used)? N/A
7. How will samples be transported and preserved? N/A
8. What sampling methods will be used? N/A
9. Are you proposing a variation from the methods and/or procedures presented in the requirements for the construction or destruction of Vadose and Groundwater Monitoring Wells (Current SAM Manual Requirements)? If yes, specify these variations and include a well construction diagram and all required supporting documentation. Refer to the SAM Manual Appendix B for monitoring well guidelines (http://www.sdcounty.ca.gov/deh/lwg/sam/monitoring_well.html). :No
10. Are you proposing a variation in drilling and destruction of soil borings from the methods and/or procedures specified in the current SAM manual? If yes, specify these variations and include a destruction diagram. No
11. What procedures will be used to ensure that the drilling equipment will introduce no contamination? All drilling equipment will be decontaminated prior to use at each borehole.
12. What methods will be used to clean sampling equipment? All sampling equipment will be washed in detergent solution, rinsed in potable water and rinsed again in deionized water.

13. What cleaning method will be used to clean casing and screen prior to installation? Materials will arrive on site pre-cleaned.



DRAWING NO: 05008924.DWG	
DCN: SES-TECH-05-0089	CTO: #0004
APPROVED BY: MC	CHECKED BY: MC
DATE: 07/08/05	REV: REVISION 0
DRAWN BY: MD	



LEGEND

- UST REMOVAL SOIL SAMPLE
 MW14131-C-1.5'
 MW14131-1 PREVIOUS MONITORING WELL BY JEG/IT (1992)
 B14131-4 PREVIOUS BORING BY JEG/IT (1992)
 B14131-7 BORING BY SOTA (1998)
 MW14131-6 SOTA MONITORING WELL (1998)
 (289.62) GROUNDWATER ELEVATION 12/1/98 OR 12/2/98
 289 GROUNDWATER TABLE CONTOUR, WITH ARROWS INDICATING GROUNDWATER FLOW DIRECTION

ANALYTE
TPH-d
TPH-g
MTBE
B
T
E
X

GROUNDWATER SAMPLE ANALYTICAL RESULTS (IN MICROGRAMS PER LITER (PPB))

ABBREVIATIONS:

- TPH-d : DIESEL ug/L
 TPH-g : GASOLINE ug/L
 MTBE : METHYL TERTIARY BUTYL ETHER ug/L
 B : BENZENE ug/L
 T : TOLUENE ug/L
 E : ETHYLBENZENE ug/L
 X : XYLENES ug/L
 J : ESTIMATED VALUE, REPORTED BETWEEN PQL AND MDL
 (a) : NOT A TYPICAL GASOLINE PATTERN
 N/A : NOT ANALYZED

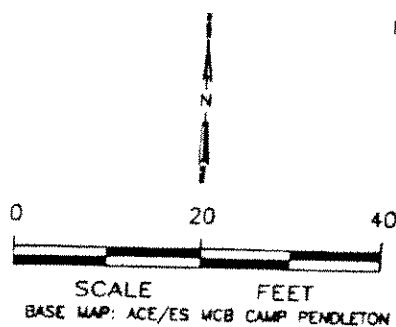


Figure 2-4
GROUNDWATER SAMPLE RESULTS,
SOTA ENVIRONMENTAL (2001)

UST SITE 14131, MCB CAMP PENDLETON

SES-TECH



PERMIT # W97790
A.P.N. # 101-000-00
EST # H05939

**COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
SITE ASSESSMENT AND MITIGATION DIVISION**

MONITORING WELL AND BORING CONSTRUCTION AND DESTRUCTION PERMIT

SITE NAME: AREA 14 - BUILDINGS 14125, 14131, 14137

SITE ADDRESS: MARINE CORP BASE, CAMP PENDLETON, CA 92055

PERMIT FOR: INSTALL 9 GROUNDWATER MONITORING WELLS AND 15 HYDROPUNCH

PERMIT APPROVAL DATE: SEPTEMBER 15, 1998

PERMIT EXPIRES ON: JANUARY 13, 1999

PERMIT CONDITIONS:

1. Contact the RWQCB for their comments and concerns regarding the proposed activities.
2. All borings must be destroyed in accordance with Department of Water Resources Bulletin 74-81 and 74-90.
3. All wash water must be contained and disposed of properly.
4. Submit complete laboratory data for both soil and groundwater with the well logs.
5. Submit all the information specified in the SAM Manual in:

Section 6, Page B-8, C., 2.
6. All water and soil that is placed in drums must be labeled and stored as specified in the SAM Manual in:

Section 1, Page 12, (5).
7. This office must be given 48 hour notice of any drilling activity on this site. Please contact Marisue Crystal at (619) 338-2339.
8. This office must be given advanced notification of drilling cancellation. Please contact Marisue Crystal at (619) 338-2339.

NOTE: This permit does not constitute approval of a workplan as defined in Section 2722 of Article 11 of C.C.R., Title 23. Workplans are required for all unauthorized release investigations in San Diego County.

APPROVED BY: *[Signature]*

DATE: 9/15/98

Notified: D. MATHY
9/16/98 cc

SOIL DATA LOG

BORING NUMBER: MW14131-4

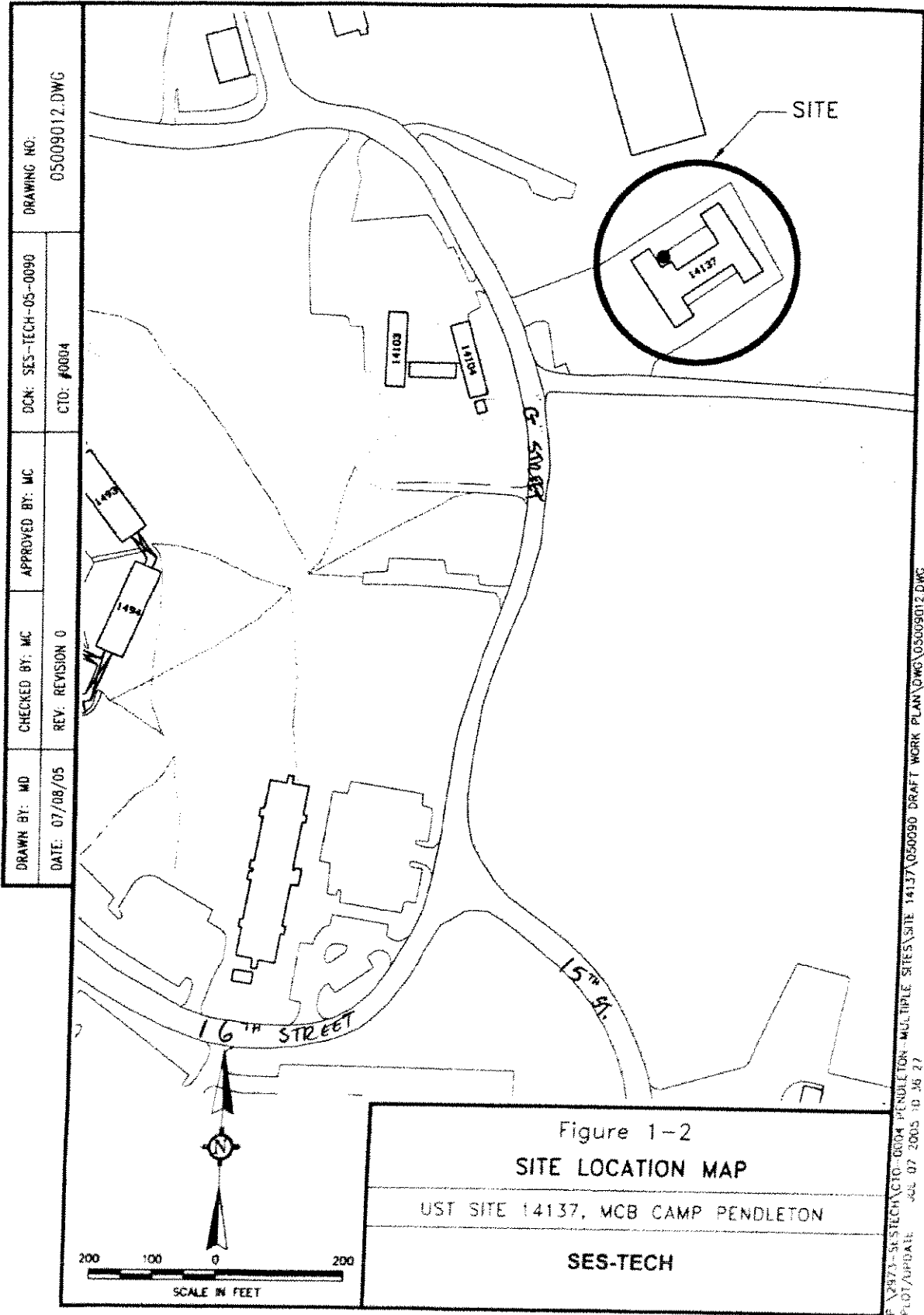
TOP OF CASING ELEVATION: 296.43 FEET +MSL

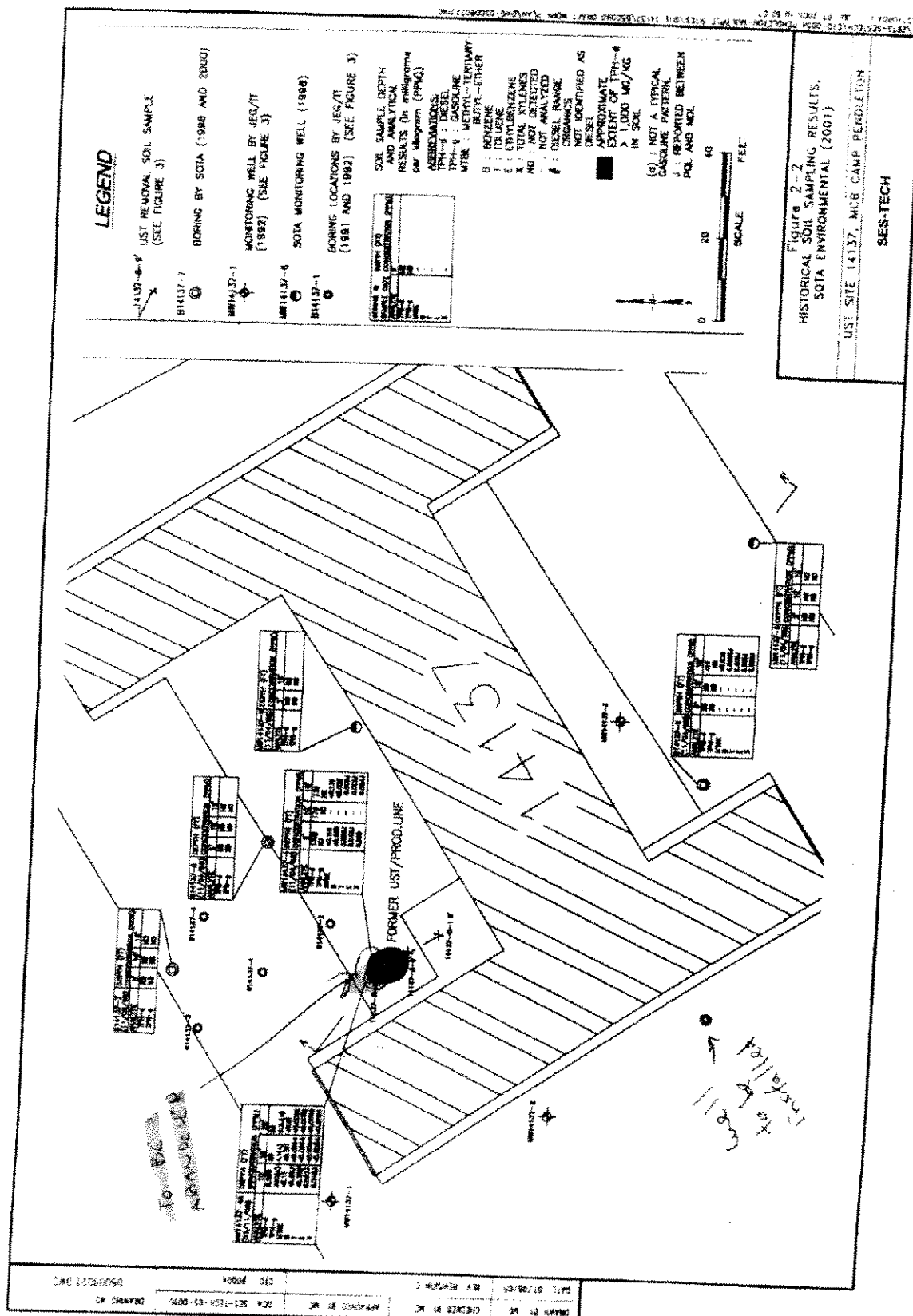
WELL CONSTR.	TPHd (mg/kg)	DRIVEN SAMPLE BLOW COUNT (blows/ft.)	SOIL SAMPLE GW SAMPLE	DEPTH (ft.)	GRAPHIC LOG	SOIL CLASS	DRILLING CONTRACTOR: SPECTRUM EXPLORATION, INC. DRILLING METHOD: HOLLOW-STEM AUGER DRILL RIG: CME-85 SAMPLE METHOD(S): 140# HAMMER DOWN HOLE/30" DROP 2.5" I.D. MOD. CAL. /HYDROPUNCH		DRILL DATE: 11/3/98 BORING DIAM.: 8.5-INCH LOGGED BY: M. SAYRE CHECKED BY: D. MURTHY	
							DESCRIPTION/INTERPRETATION			
	29	22		5		SM	EXCAVATION BACKFILL: Gray-brown, moist, medium dense, silty SAND; w/some gravel. @ 9' : Changes to saturated, dark gray; strong diesel odor.			
	1,000									
	770	15		10		CH	SANTIAGO FORMATION: Light green, moist, stiff, sandy CLAYSTONE.			
16	87/ 11"		15							
				20			TOTAL DEPTH = 15' GROUNDWATER ENCOUNTERED @ 9.5' NO CAVING MONITORING WELL INSTALLED 11/6/98			
				25						



UST SITE 14131
MCB CAMP PENDLETON
CAMP PENDLETON, CALIFORNIA

FIGURE MW-4
PROJECT NO. 97HW024
JUNE 1999



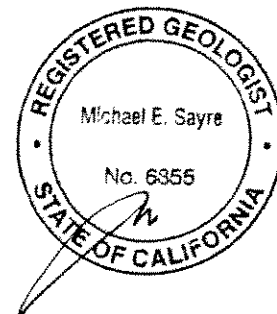


DATE: 07/26/05	REV: 0000	050990012 DMC
DRAWN BY: MC	CHECKED BY: MC	APPROVED BY: MC
DCR: SES-TECH-05-009	050990012 DMC	

SOIL DATA LOG

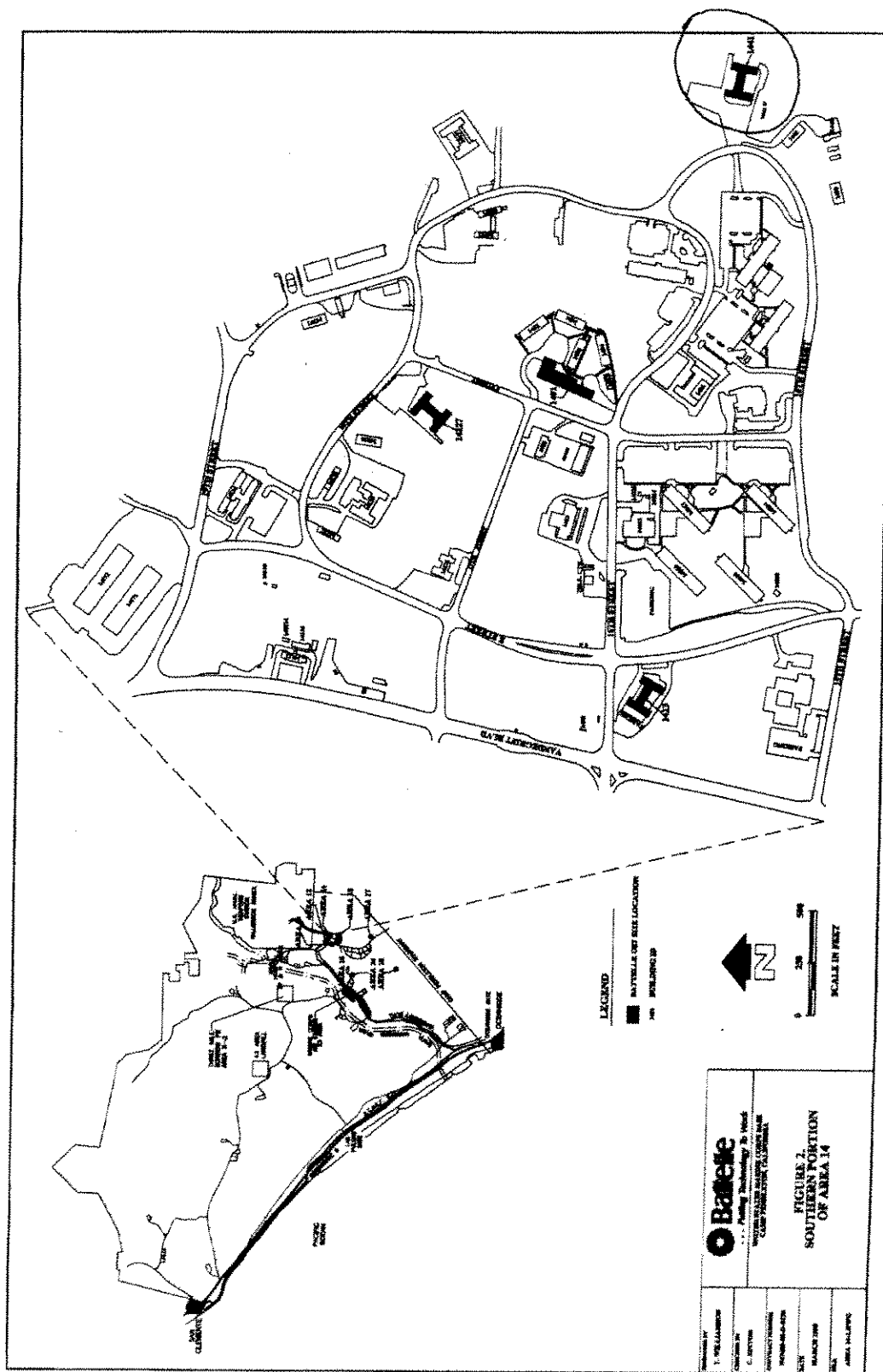
WELL NUMBER: MW14137-4
TOP OF CASING ELEVATION: 284.28 FEET +MSL

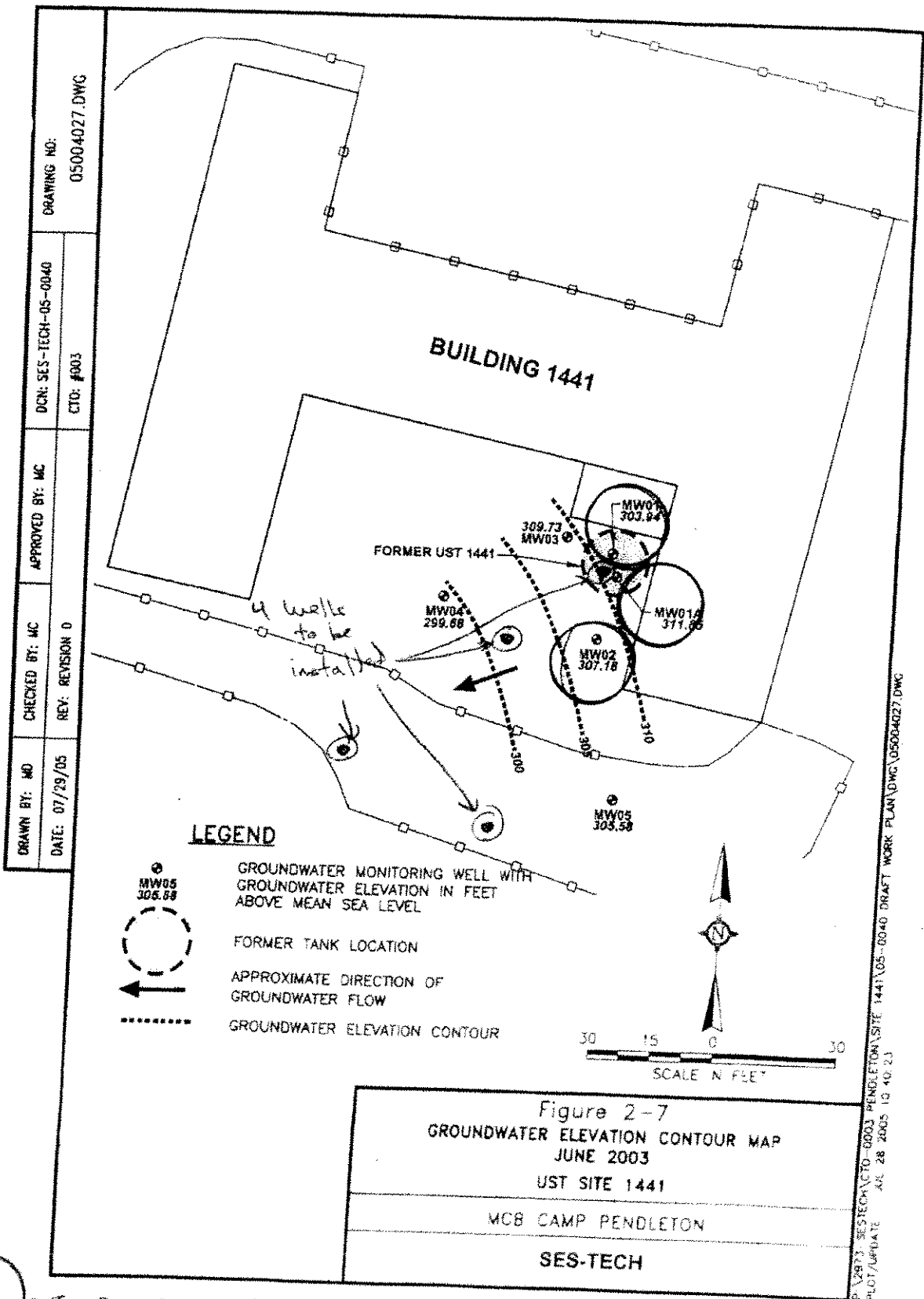
WELL CONSTR.	TPHd (mg/kg)	DRIVEN SAMPLE BLOW COUNT (blows/ft.)	SOIL SAMPLE GW SAMPLE	DEPTH (ft.)	GRAPHIC LOG	SOIL CLASS	DESCRIPTION/INTERPRETATION
DRILLING CONTRACTOR: SPECTRUM EXPLORATION, INC. DRILLING METHOD: HOLLOW-STEM AUGER SAMPLE METHOD(S): 140# HAMMER DOWN HOLE/30" DROP 2.5" I.D. MOD. CAL. /HYDROPUNCH							DRILL DATE: 11/4/98 BORING DIAM.: 8.5-INCH LOGGED BY: M. SAYRE CHECKED BY: D. MURTHY
							ASPHALTIC PAVEMENT: Approximately 3" thick.
							EXCAVATION BACKFILL: Yellow-brown, moist, medium dense, silty SAND and GRAVEL. @ 5' : Changes to moist, gray staining, moderate diesel odor.
							RESIDUAL SOIL: Gray to gray-brown, moist, very dense, silty SAND. @ 10' : Changes to saturated.
TOTAL DEPTH = 15' GROUNDWATER ENCOUNTERED @ 10' NO CAVING WELL CONSTRUCTED 11/4/98							



UST SITE 14137
MCB CAMP PENDLETON
CAMP PENDLETON, CALIFORNIA

FIGURE MW-4
PROJECT NO. 97HW024
JUNE 2000





○ = TO BE ABANDONED



PERMIT #W97569
A.P.N. # 101-000-00
EST # H05939

COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
SITE ASSESSMENT AND MITIGATION DIVISION

MONITORING WELL AND BORING CONSTRUCTION AND DESTRUCTION PERMIT

SITE NAME: AREA 14, BUILDING 1441

SITE ADDRESS: MCB CAMP PENDLETON, CAMP PENDLETON, CA 92055

PERMIT FOR: 6 BORINGS

PERMIT APPROVAL: MAY 21, 1998

PERMIT EXPIRES ON: SEPTEMBER 18, 1998

PERMIT CONDITIONS:

1. No Workplan has been received or reviewed for the work proposed on any of the sites. No new work should occur without approval from this department. Please contact Lars Skinner at (619) 338-2396 for guidance.
2. All borings must be destroyed in accordance with Department of Water Resources Bulletin 74-81 and 74-90.
3. All wash water must be contained and disposed of properly.
4. Submit complete laboratory data for both soil and groundwater with the well logs.
5. Submit all the information specified in the SAM Manual in:
Section 6, Page B-8, C., 2.
6. All water and soil that is placed in drums must be labeled and stored as specified in the SAM Manual in:
Section 1, Page 12, (5).
7. This office must be given 48 hour notice of any drilling activity on this site. Please contact Marisue Crystal at (619) 338-2339.
8. This office must be given advanced notification of drilling cancellation. Please contact Marisue Crystal at (619) 338-2339.

NOTE: This permit does not constitute approval of a workplan as defined in Section 2722 of Article 11 of C.C.R., Title 23. Workplans are required for all unauthorized release investigations in San Diego County.

APPROVED BY:

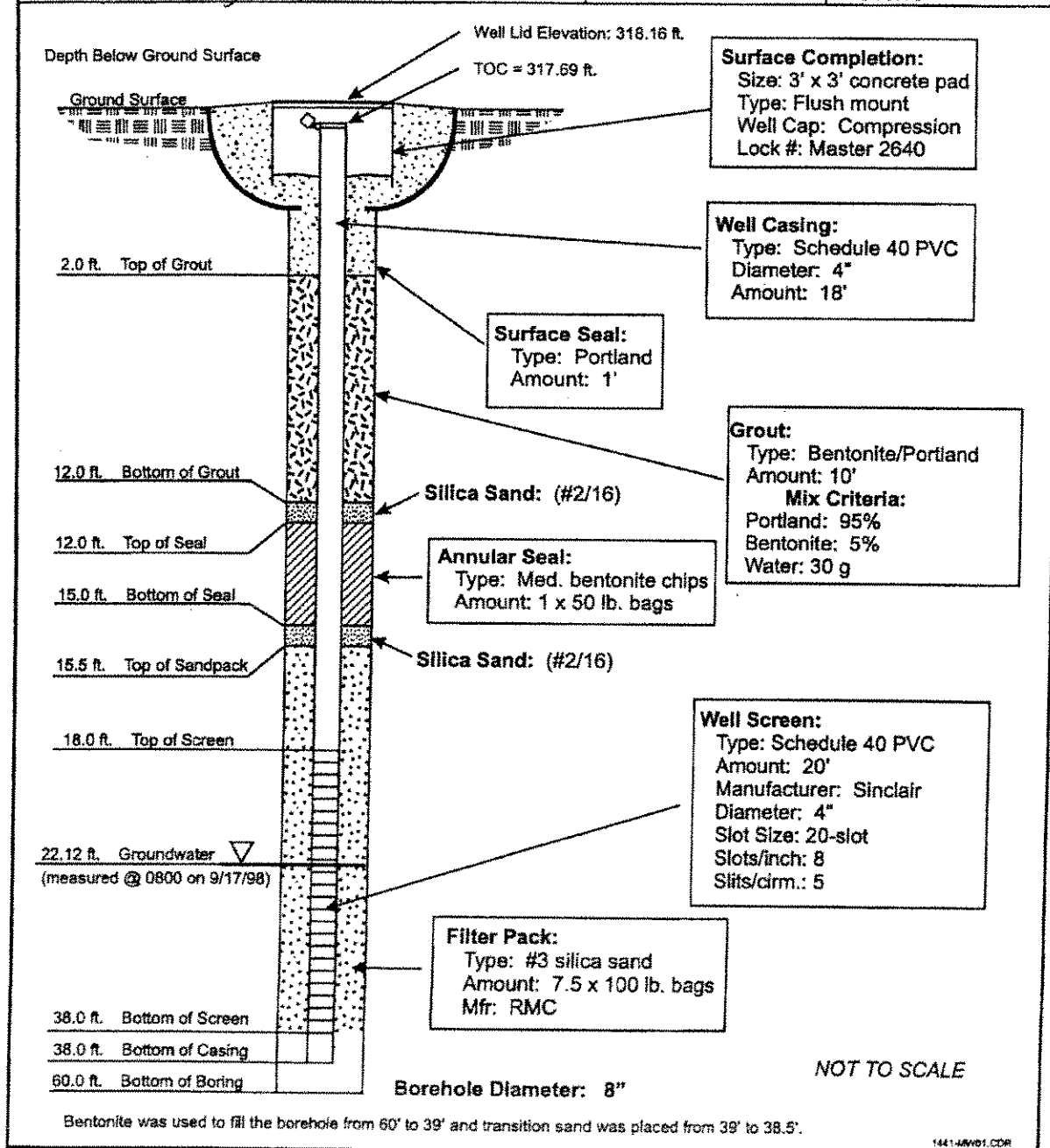
Notified: V. H. H. 5/21/98

DATE: 5/21/98



MCB CAMP PENDLETON - D.O. 42 WELL COMPLETION DIAGRAM 1441-MW01 (1441-SB08)

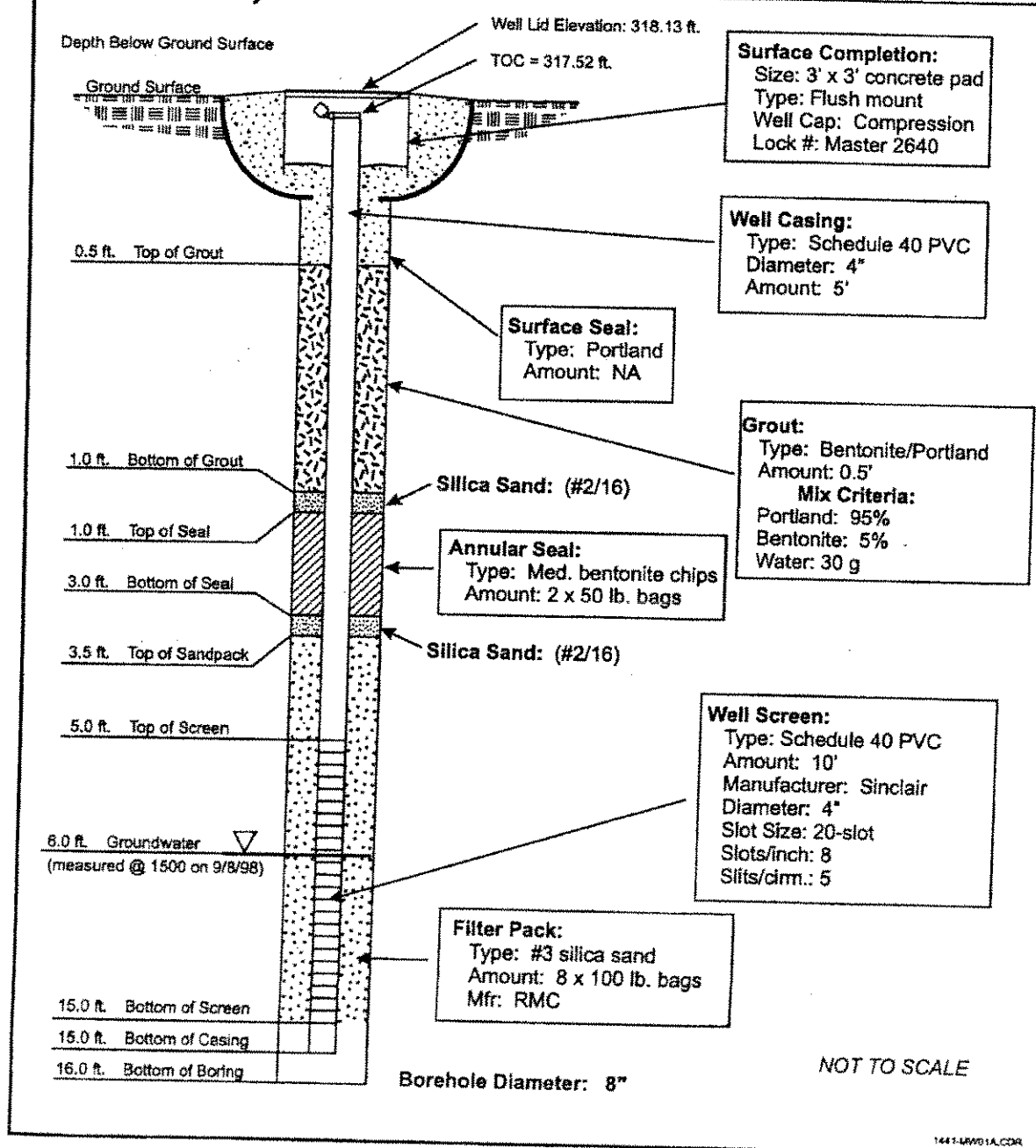
Project #: G337342-C11	Site: MCB Camp Pendleton	Well #: 1441-MW01	Northing: 2058322.314
Drilling Contractor: Water Development	Rig Type and Drilling Method: CME 1050 HSA/Air Rotary	Date: 9/17/98	Easting: 6241087.609
Reviewed by: <i>Max Shalagin</i>	Driller: Jason Pottroff	Hydrologist: Matt Place	Surface Elevation: 318.16





MCB CAMP PENDLETON - D.O. 42 WELL COMPLETION DIAGRAM 1441-MW01A (1441-SB01)

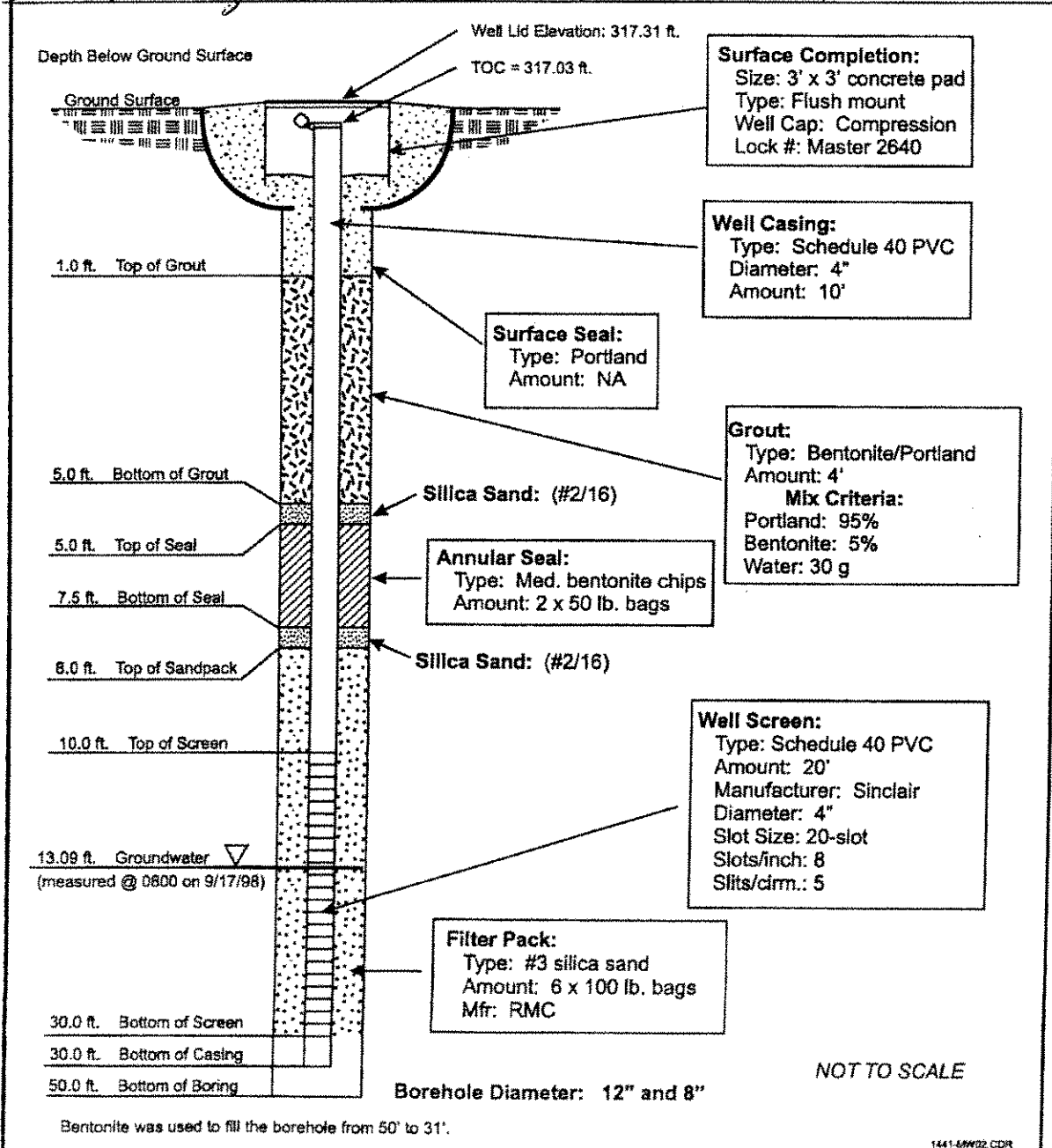
Project #: G337342-C11	Site: MCB Camp Pendleton	Well #: 1441-MW01A	Northing: 2058316.708
Drilling Contractor: Water Development	Rig Type and Drilling Method: CME 1050 HSA/Air Rotary	Date: 9/17/98	Easting: 6241088.944
Reviewed by: <i>Max Shallogan</i>	Driller: Jason Pottroff	Hydrologist: Matt Place	Surface Elevation: 318.12





MCB CAMP PENDLETON - D.O. 42 WELL COMPLETION DIAGRAM 1441-MW02 (1441-SB04)

Project #: G337342-C11	Site: MCB Camp Pendleton	Well #: 1441-MW02	Northing: 2058301.502
Drilling Contractor: Water Development	Rig Type and Drilling Method: CME 1050 HSA/Air Rotary	Date: 9/19/98	Easting: 6241084.674
Reviewed by: <i>Max Shahbazian</i>	Driller: Jason Pottroff	Hydrologist: Matt Place	Surface Elevation: 317.29



1441-MW02.CDR

APPENDIX B

STOCKPILE WAIVER CERTIFICATION

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340
Attention: Land Discharge Unit

RWQCS Regulatory Program:

☐ LDU ☐ DoD/SLIC ☐ UST/AST/LOP County _____

I. Generator of Temporary Waste Pile

SECTION A: Temporary Waste Pile Waiver Certification

Generator Name: AC/S Environmental Security, MCB Camp Pendleton
 Mailing Address: Box 556008 Bldg 22168
Camp Pendleton County: SD State: CA Zip: 92055 Phone: 760-725-9774 760-725-9774
 Contact: Chet Starrs Title: Remediation Branch Manager

II. Present Status of Temporary Waste Pile

Site Location: Building 1441, 14 Area
 Property Owner Name: U.S. Marine Corps
Camp Pendleton County: SD State: CA Zip: 92055 APN No.: 101-520-14-00
 RWQCS File No.: 9073241 LOP Case No.: _____ County (CA, WA): 160 Method of Containment: Berm + Plastic Sheeting

Waste Type **Contaminant/Constituent Concentrations**

Contaminant Type/Source:
☐ Gasoline
☒ Diesel
☐ Other Petrol. Hydrocarbons
☐ Impacted Dredge Spoils
☐ Other Impacted Soils

Diesel (mg/kg)							
Mean	Mean + 95% CL	Mean	Mean + 95% CL	Mean	Mean + 95% CL	Mean	Mean + 95% CL
294.0	356.0						

III. Waste Pile Site Information

Site Conditions Met:
☒ Ground Water Separation
☒ Surface Water Separation
☒ Flood Plain Protection
☒ Cover of Waste Pile
☒ Precipitation/Drainage Control

Discharger/Property Owner:
U.S. Marine Corps
Building 1441, 14 Area
Camp Pendleton County: SD State: CA Zip: 92055
 Contact: Chet Starrs Phone: 760-725-9774
 Date: 01/31/06

Property Owner Acknowledgment:
 I hereby acknowledge receipt of the waste described in this notice, and acknowledge that I have reviewed any associated reports. By signing this form I acknowledge that the Generator of this waste has certified that all the conditions for the waiver from Waste Discharge Requirements (WDRs) for discharge of specified waste indicated in Section II (above) have been met.

Print Name: C. Starrs Title: Rem Branch Head
 Signature: [Signature] Date: 13 Feb 06

IV. Generator Certification

I hereby certify that the information provided regarding soil characterization is a complete and accurate representation of the subject soil, and that the soil is not hazardous waste as defined by the California Code of Regulations, Title 22, and by the United States Environmental Protection Agency (Code of Federal Regulations, Title 40), and that all conditions for the waiver from WDRs for discharge of specified wastes indicated in Section II (above) have been met.

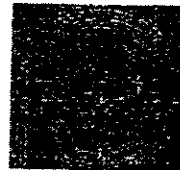
Print Name: C. Starrs Title: Rem Branch Head
 Signature: [Signature] Date: 13 Feb 06

MAIL CERTIFICATION FORMS TO:

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN DIEGO REGION

9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Attention: Land Discharge Unit Supervisor



V. Final Waste Disposal Information

SECTION B: Temporary Waste Pile Waiver Certification

Final Disposition of Waste	Discharger/Property Owner			
<input checked="" type="checkbox"/> Offsite/Landfill disposal	Property Owner/Discharger: U.S. Marine Corps CUST Site 1441			
<input type="checkbox"/> On-site reuse/disposal	Mailing Address: Box 555008, Building 22165			
<input type="checkbox"/> Off-site reuse/disposal	City: Camp Pendleton	County: San Diego	State: Ca	Zip: 92055
<input type="checkbox"/> Other	Contact Name: Chet Storrs		Phone: 960-725-9774	
	Date(s) Waste Pile(s) Disposed:		Disposal Location(s): Candelaria Environmental 4001, Candelaria Lane, Anza, Ca 92539	

Final Disposal Certification

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Print Name:

C Storrs

Title:

Res Branch Head

Signature:

C Storrs

Date:

13 Feb 06

For Agency Use Only

RWQCB Regulatory Program:

☐ LDU

☐ DoD/SLIC

☐ UST/AGT/LOP County _____

APPENDIX C

**CONFIRMATION SOIL SAMPLE AND BACKFILL MATERIAL
ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY
DOCUMENTATION**

TABLE OF CONTENTS

CLIENT: **SES-TECH**
PROJECT: **CAMP PENDLETON, UST SITE 1441**
SDG: **06A173**

SECTION	PAGE
Cover Letter, COC/Sample Receipt Form	1000 – 1003
GC/MS-VOA **	2000 –
GC/MS-SVOA **	3000 –
GC-VOA **	4000 –
GC-SVOA METHOD 3550B/8015B	5000 – 5054
HPLC **	6000 –
METALS **	7000 –
WET **	8000 –
OTHERS **	9000 –

** - Not Requested



1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 02-03-2006
EMAX Batch No.: 06A173

Attn: Nick Weinberger

SES-TECH
1940 E. Deere Avenue, Suite 200
Santa Ana CA 92705

Subject: Laboratory Report
Project: Camp Pendleton, UST Site 1441

Enclosed is the Laboratory report for samples received on 01/31/06.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
0003-069	A173-01	01/31/06	SOIL	TPH DIESEL
0003-070	A173-02	01/31/06	SOIL	TPH DIESEL
0003-071	A173-03	01/31/06	SOIL	TPH DIESEL
0003-072	A173-04	01/31/06	SOIL	TPH DIESEL
0003-073	A173-05	01/31/06	SOIL	TPH DIESEL
0003-074	A173-06	01/31/06	SOIL	TPH DIESEL
0003-075	A173-07	01/31/06	SOIL	TPH DIESEL
0003-076	A173-08	01/31/06	SOIL	TPH DIESEL
0003-077	A173-09	01/31/06	SOIL	TPH DIESEL
0003-078	A173-10	01/31/06	SOIL	TPH DIESEL
0003-079	A173-11	01/31/06	SOIL	TPH DIESEL
0003-077MS	A173-09M	01/31/06	SOIL	TPH DIESEL
0003-077MSD	A173-09S	01/31/06	SOIL	TPH DIESEL

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

FOSTER WHEELER ENVIRONMENTAL CORPORATION
2230 Columbus Street, Suite 640 San Diego, CA 92101 (619) 234-8996

NUMBER 04974

CHAIN-OF-CUSTODY RECORD

PROJECT NAME Camp Pendleton		PURCHASE ORDER NO. TBD will call		LABORATORY NAME EMAX	
PROJECT LOCATION 15T Site 1441		PROJECT NO. 2973.0030		LABORATORY ID (FOR LABORATORY)	
SAMPLER NAME Wendy Baupt		SAMPLER SIGNATURE <i>[Signature]</i>			
PROJECT CONTACT Nick Weinberger		AIRTEL NUMBER Canister			

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINERS	LEVEL				TYP	TAT	ANALYSES REQUIRED	COMMENTS
				3	4	5	6				
0003-069	11/3/06	0801	2	X				S	48		
0003-070	11/3/06	0905	2	X				S	48		
0003-071	11/3/06	0908	2	X				S	48		
0003-072	11/3/06	0911	2	X				S	48		
0003-073	11/3/06	0915	2	X				S	48		
0003-074	11/3/06	0920	2	X				S	48		
0003-075	11/3/06	1032	2	X				S	48		
0003-076	11/3/06	1038	2	X				S	48		
0003-077	11/3/06	1046	6	X				S	48		includes Hs/HSD
0003-078	11/3/06	1052	2	X				S	48		
0003-079	11/3/06	1108	2	X				S	48		

LABORATORY INSTRUCTIONS/COMMENTS
*top samples for possible SPL extraction

COMPOSITE DESCRIPTION

RECEIVED BY (Signature) <i>[Signature]</i>	RECEIVED BY (Signature) EMAX
DATE 11/3/06	DATE 11/3/06
TIME 1350	TIME 1445
COMPANY EMAX	COMPANY EMAX
RECEIVED BY (Signature) <i>[Signature]</i>	RECEIVED BY (Signature) <i>[Signature]</i>
DATE 11/3/06	DATE 11/3/06
TIME 1445	TIME 1445
COMPANY EMAX	COMPANY EMAX

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: 3.2 SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	06A173
<input checked="" type="checkbox"/> EMAX Courier		Receptent	Florencia
<input type="checkbox"/> Client Delivery		Date	1-31-06
<input type="checkbox"/> Third Party		Time	14:45

COC Inspection		
<input checked="" type="checkbox"/> Client Name	<input checked="" type="checkbox"/> Sampler Name	<input checked="" type="checkbox"/> Sampling Date/Time/Location
<input checked="" type="checkbox"/> Address	<input checked="" type="checkbox"/> Courier Signature/Date/Time	<input checked="" type="checkbox"/> Analysis Required
<input checked="" type="checkbox"/> Client PM/FC	<input checked="" type="checkbox"/> TAT	<input checked="" type="checkbox"/> Matrix
<input checked="" type="checkbox"/> Tel #/Fax #	<input checked="" type="checkbox"/> Sample ID	<input type="checkbox"/> Preservative (if any)
Safety Issues <input type="checkbox"/> None	<input type="checkbox"/> High Concentrations expected	<input type="checkbox"/> Superfund Site Samples
Comments: <input type="checkbox"/> Rad Screening Required		

Packaging Inspection			
Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	
Condition	<input type="checkbox"/> Custody Seal	<input checked="" type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging	<input type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input checked="" type="checkbox"/> Sufficient
Temperatures	<input checked="" type="checkbox"/> Cooler 1 <u>3.2</u>	<input checked="" type="checkbox"/> Cooler 2 <u> </u>	<input type="checkbox"/> Cooler 3 <u> </u>
	<input type="checkbox"/> Cooler 5 <u> </u>	<input type="checkbox"/> Cooler 6 <u> </u>	<input type="checkbox"/> Cooler 7 <u> </u>
	<input type="checkbox"/> Cooler 9 <u> </u>	<input type="checkbox"/> Cooler 10 <u> </u>	<input type="checkbox"/> Cooler 8 <u> </u>
Comments:			<input type="checkbox"/> Cooler 11 <u> </u>
			<input type="checkbox"/> Cooler 12 <u> </u>

[illegible]

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling

Date _____

SRF

Date _____

PM

Date _____

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 1441

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 06A173

5000

CASE NARRATIVE

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 1441
SDG: 06A173

METHOD 3550B/8015B TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Eleven (11) soil samples were received on 01/31/06 for Total Petroleum Hydrocarbons by Extraction analysis by Method 3550B/8015B in accordance with SW846 3RD Edition.

1. Holding Time

Analytical holding time was met. Extraction was performed and completed on 02/01/06.

2. Calibration

Initial calibration was seven points for Diesel. %RSDs were within 20%. Continuing calibrations were carried out at 12-hour intervals and all recoveries were within 85-115%.

3. Method Blank

Method blank was free of contamination at half of the reporting limit.

4. Surrogate Recovery

Surrogate recovery in sample A173-01 could not be evaluated due to dilution. All others met the QC criteria.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

Sample A173-09 was spiked. Recoveries were within QC limits.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception. Sample results were quantitated from C10 to C24 using Diesel (C10-C24) calibration factor.

Samples A173-01, -03, -04, -06, -09 and -11 displayed diesel-like fuel pattern.

Sample A173-02 displayed motor oil-like fuel pattern.



SDG NO. : 06A173
Instrument ID : GCT050

```
Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 1441
```

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	SOIL		Extraction Date/Time	Sample Data FN	Calibration		Prep. Batch	Notes
				Analysis Date/Time				Data FN			
MBLX1S LCS1S LCS1S 0003-069 0003-070 0003-071 0003-072 0003-073 0003-074 0003-075	DSB001SB	1	NA	02/01/0619:04	02/01/0612:00	TA31042A	TA31038A	DSB001S	Method Blank		
	DSB001SL	✓	NA	02/01/0619:46	02/01/0612:00	TA31043A	TA31038A	DSB001S	Lab Control		
	DSB001SC	1	NA	02/01/0620:28	02/01/0612:00	TA31044A	TA31038A ✓	DSB001S	LCS Duplicate		
	A173-01†	10	7.0	02/02/0608:21	02/01/0612:00	TA31061A	TA31053A	DSB001S	Diluted Sample		
	A173-02	1	7.8	02/02/0601:22	02/01/0612:00	TA31051A	TA31038A	DSB001S	Field Sample		
	A173-03	1	6.0	02/01/0621:10	02/01/0612:00	TA31045A	TA31038A	DSB001S	Field Sample		
	A173-04	1	2.0	02/01/0621:52	02/01/0612:00	TA31046A	TA31038A	DSB001S	Field Sample		
	A173-05	1	5.4	02/01/0622:34	02/01/0612:00	TA31047A	TA31038A	DSB001S	Field Sample		
	A173-06	1	4.4	02/01/0623:16	02/01/0612:00	TA31048A	TA31038A	DSB001S	Field Sample		
	A173-07	1	4.1	02/01/0623:58	02/01/0612:00	TA31049A	TA31038A	DSB001S	Field Sample		
0003-076 0003-077 0003-078 0003-079 0003-078 0003-079 0003-077NS 0003-077NSD	A173-08	1	6.9	02/02/0600:40	02/01/0612:00	TA31050A	TA31038A	DSB001S	Field Sample		
	A173-09	1	3.2	02/02/0606:10	02/01/0612:00	TA31055A	TA31053A	DSB001S	Field Sample		
	A173-10	1	2.4	02/02/0606:15	02/01/0612:00	TA31058A	TA31053A	DSB001S	Field Sample		
	A173-11	1	5.3	02/02/0606:57	02/01/0612:00	TA31059A	TA31053A	DSB001S	Field Sample		
	A173-09M	1	3.2	02/02/0604:52	02/01/0612:00	TA31056A	TA31053A	DSB001S	Matrix Spike		
	A173-09S	1	3.2	02/02/0604:33	02/01/0612:00	TA31057A	TA31053A	DSB001S	MS Duplicate		

Expt	Pilene	% Moist	Percent Moisture
1	0.00	0.00	0.00
2	0.00	0.00	0.00
3	0.00	0.00	0.00
4	0.00	0.00	0.00
5	0.00	0.00	0.00
6	0.00	0.00	0.00
7	0.00	0.00	0.00
8	0.00	0.00	0.00
9	0.00	0.00	0.00
10	0.00	0.00	0.00
11	0.00	0.00	0.00
12	0.00	0.00	0.00
13	0.00	0.00	0.00
14	0.00	0.00	0.00
15	0.00	0.00	0.00
16	0.00	0.00	0.00
17	0.00	0.00	0.00
18	0.00	0.00	0.00
19	0.00	0.00	0.00
20	0.00	0.00	0.00
21	0.00	0.00	0.00
22	0.00	0.00	0.00
23	0.00	0.00	0.00
24	0.00	0.00	0.00
25	0.00	0.00	0.00
26	0.00	0.00	0.00
27	0.00	0.00	0.00
28	0.00	0.00	0.00
29	0.00	0.00	0.00
30	0.00	0.00	0.00
31	0.00	0.00	0.00
32	0.00	0.00	0.00
33	0.00	0.00	0.00
34	0.00	0.00	0.00
35	0.00	0.00	0.00
36	0.00	0.00	0.00
37	0.00	0.00	0.00
38	0.00	0.00	0.00
39	0.00	0.00	0.00
40	0.00	0.00	0.00
41	0.00	0.00	0.00
42	0.00	0.00	0.00
43	0.00	0.00	0.00
44	0.00	0.00	0.00
45	0.00	0.00	0.00
46	0.00	0.00	0.00
47	0.00	0.00	0.00
48	0.00	0.00	0.00
49	0.00	0.00	0.00
50	0.00	0.00	0.00
51	0.00	0.00	0.00
52	0.00	0.00	0.00
53	0.00	0.00	0.00
54	0.00	0.00	0.00
55	0.00	0.00	0.00
56	0.00	0.00	0.00
57	0.00	0.00	0.00
58	0.00	0.00	0.00
59	0.00	0.00	0.00
60	0.00	0.00	0.00
61	0.00	0.00	0.00
62	0.00	0.00	0.00
63	0.00	0.00	0.00
64	0.00	0.00	0.00
65	0.00	0.00	0.00
66	0.00	0.00	0.00
67	0.00	0.00	0.00
68	0.00	0.00	0.00
69	0.00	0.00	0.00
70	0.00	0.00	0.00
71	0.00	0.00	0.00
72	0.00	0.00	0.00
73	0.00	0.00	0.00
74	0.00	0.00	0.00
75	0.00	0.00	0.00
76	0.00	0.00	0.00
77	0.00	0.00	0.00
78	0.00	0.00	0.00
79	0.00	0.00	0.00
80	0.00	0.00	0.00
81	0.00	0.00	0.00
82	0.00	0.00	0.00
83	0.00	0.00	0.00
84	0.00	0.00	0.00
85	0.00	0.00	0.00
86	0.00	0.00	0.00
87	0.00	0.00	0.00
88	0.00	0.00	0.00
89	0.00	0.00	0.00
90	0.00	0.00	0.00

SAMPLE RESULTS

5003

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173                       Date Extracted: 02/01/06 12:00
Sample ID: 0003-069                       Date Analyzed: 02/02/06 08:21
Lab Samp ID: A173-01T                     Dilution Factor: 10
Lab File ID: TA31061A                     Matrix       : SOIL
Ext Btch ID: DSB001S                      % Moisture   : 7.0
Calib. Ref.: TA31053A                     Instrument ID : GCT050
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	3500 /	110	54

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	DO	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

DO : Diluted Out

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : SES-TECH                      Date Collected: 01/31/06
Project      : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.    : 06A173                       Date Extracted: 02/01/06 12:00
Sample ID    : 0003-070                     Date Analyzed: 02/02/06 01:22
Lab Samp ID  : A173-02                     Dilution Factor: 1
Lab File ID  : TA31051A                    Matrix       : SOIL
Ext Btch ID  : DSB001S                     % Moisture    : 7.8
Calib. Ref.  : TA31038A                    Instrument ID : GCT050
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	28	11	5.4

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	99	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173                       Date Extracted: 02/01/06 12:00
Sample ID   : 0003-071                     Date Analyzed: 02/01/06 21:10
Lab Samp ID : A173-03                      Dilution Factor: 1
Lab File ID : TA31045A                    Matrix       : SOIL
Ext Btch ID : DSB001S                     % Moisture    : 6.0
Calib. Ref. : TA31038A                    Instrument ID : GCT050
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	12	11	5.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	94	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173                      Date Extracted: 02/01/06 12:00
Sample ID   : 0003-072                    Date Analyzed: 02/01/06 21:52 ✓
Lab Samp ID : A173-04                     Dilution Factor: 1
Lab File ID : TA31046A                    Matrix       : SOIL
Ext Btch ID : DSB001S                     % Moisture    : 2.0
Calib. Ref. : TA31038A                    Instrument ID : GCT050
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	290	10	5.1

SURROGATE PARAMETERS	% RECOVERY ✓	QC LIMIT
HEXACOSANE	102	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : SES-TECH                      Date Collected: 01/31/06
Project      : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.    : 06A173                       Date Extracted: 02/01/06 12:00
Sample ID    : 0003-073                     Date Analyzed: 02/01/06 22:34
Lab Samp ID  : A173-05                       Dilution Factor: 1
Lab File ID  : TA31047A                      Matrix       : SOIL
Ext Btch ID  : DSB001S                       % Moisture    : 5.4
Calib. Ref.  : TA31038A                      Instrument ID : GCT050
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	85	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173                       Date Extracted: 02/01/06 12:00
Sample ID   : 0003-074                     Date Analyzed: 02/01/06 23:16
Lab Samp ID : A173-06                       Dilution Factor: 1
Lab File ID : TA31048A                     Matrix       : SOIL
Ext Btch ID : DSB001S                      % Moisture    : 4.4
Calib. Ref. : TA31038A                     Instrument ID : GCY050
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	1800	10	5.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	107	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173                      Date Extracted: 02/01/06 12:00
Sample ID   : 0003-075                    Date Analyzed: 02/01/06 23:58
Lab Samp ID : A173-07                     Dilution Factor: 1
Lab File ID : TA31049A                    Matrix       : SOIL
Ext Btch ID : OSB001S                     % Moisture    : 4.1
Calib. Ref. : TA31038A                    Instrument ID : GCT050
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	95	65-135

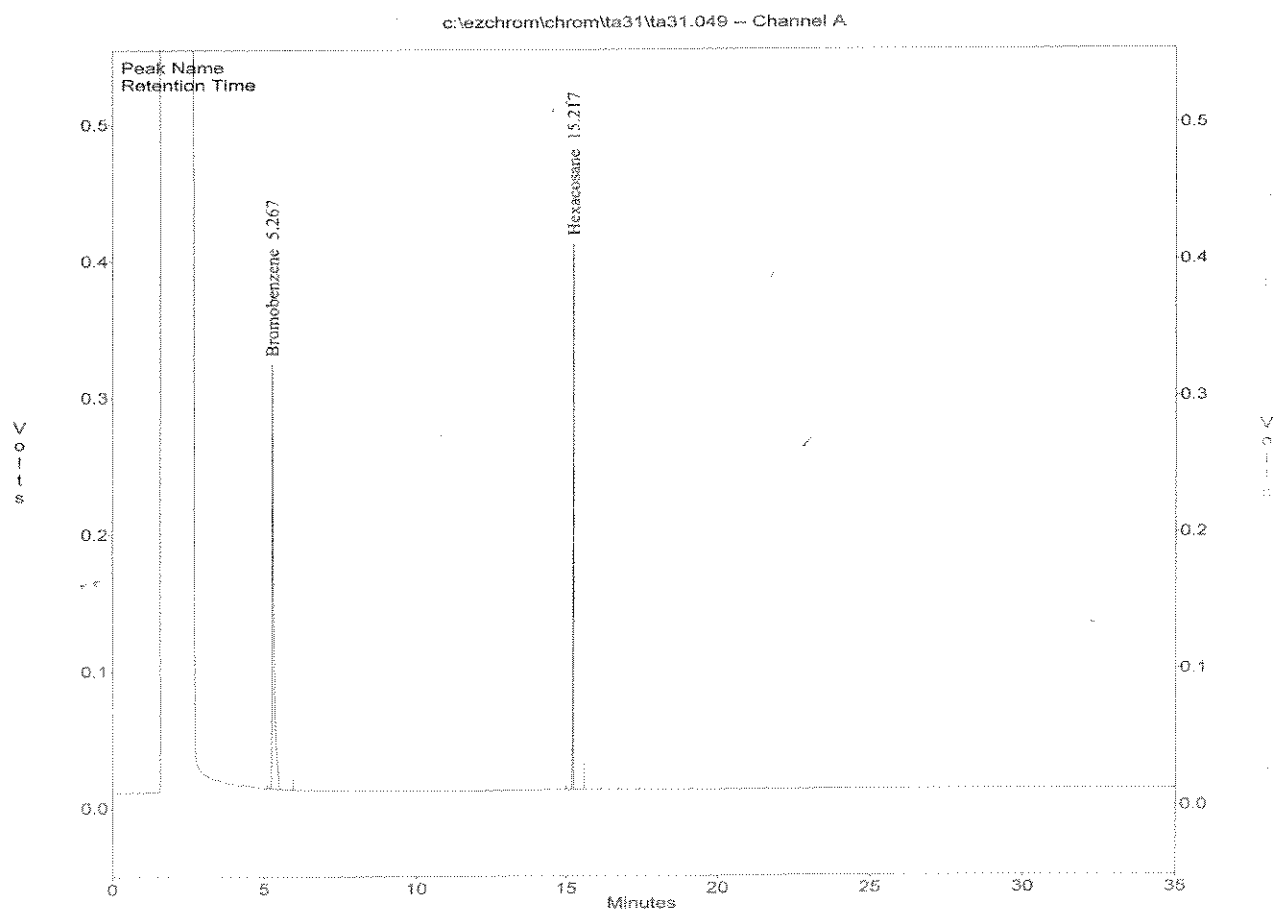
RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.049
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : 06A173-07
Acquired : Feb 01, 2006 23:58:25
Printed : Feb 02, 2006 10:36:12
User : JANE

Channel A Results

#	Peak Name	Ret. Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	5.267	1216715	14214.3	85.6
2	Hexacosane	15.217	685279	28984.5	23.6
G1	Diesel (TOTAL)		0	26500.7	0.0
G2	Diesel (C10-C24)		0	26460.6	0.0
G3	Diesel (C10-C28)		0	26478.8	0.0



5011

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173                       Date Extracted: 02/01/06 12:00
Sample ID   : 0003-076                     Date Analyzed: 02/02/06 00:40
Lab Samp ID : A173-08                       Dilution Factor: 1
Lab File ID : TA31050A                     Matrix       : SOIL
Ext Btch ID : DSB001S                      % Moisture    : 6.9
Calib. Ref. : TA31038A                     Instrument ID : GCT050
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.4

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	98	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173                       Date Extracted: 02/01/06 12:00
Sample ID   : 0003-077                     Date Analyzed: 02/02/06 04:10
Lab Samp ID : A173-09                      Dilution Factor: 1
Lab File ID : TA31055A                     Matrix       : SOIL
Ext Btch ID : DSB001S                      % Moisture    : 3.2
Calib. Ref. : TA31053A                     Instrument ID : GCT050
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	1300	10	5.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	97	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : SES-TECH                      Date Collected: 01/31/06
Project      : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.    : 06A173                      Date Extracted: 02/01/06 12:00
Sample ID    : 0003-078                    Date Analyzed: 02/02/06 06:15
Lab Samp ID  : A173-10                    Dilution Factor: 1
Lab File ID  : TA31058A                   Matrix       : SOIL
Ext Btch ID  : DSB001S                    % Moisture    : 2.4
Calib. Ref.  : TA31053A                   Instrument ID : GCT050
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5.1

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	102	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : SES-TECH                      Date Collected: 01/31/06
Project      : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.    : 06A173                       Date Extracted: 02/01/06 12:00
Sample ID    : 0003-079                     Date Analyzed: 02/02/06 06:57
Lab Samp ID  : A173-11                      Dilution Factor: 1
Lab File ID  : TA31059A                     Matrix       : SOIL
Ext Btch ID  : DSB001S                      % Moisture    : 5.3
Calib. Ref.  : TA31053A                     Instrument ID : GCT050
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	340	11	5.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	104	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

QC SUMMARIES

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
Client      : SES-TECH                      Date Collected: NA
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 02/01/06
Batch No.   : 06A173                       Date Extracted: 02/01/06 12:00
Sample ID   : MBLK1S                       Date Analyzed: 02/01/06 19:04
Lab Samp ID : DSB001SB                     Dilution Factor: 1
Lab File ID : TA31042A                     Matrix       : SOIL
Ext Btch ID : DSB001S                      % Moisture    : NA
Calib. Ref. : TA31038A                     Instrument ID : GCT050
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	103	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 1441
BATCH NO.: 06A173
METHOD: METHOD 3550B/8015B

MATRIX: SOIL % MOISTURE: NA
DILUTION FACTOR: 1 1
SAMPLE ID: MBLK1S
LAB SAMP ID: DSB001SB DSB001SL DSB001SC
LAB FILE ID: TA31042A TA31043A TA31044A
DATE EXTRACTED: 02/01/0612:00 02/01/0612:00 02/01/0612:00 DATE COLLECTED: NA
DATE ANALYZED: 02/01/0619:04 02/01/0619:46 02/01/0620:28 DATE RECEIVED: 02/01/06
PREP. BATCH: DSB001S DSB001S DSB001S
CALIB. REF: TA31038A TA31038A ✓ TA31038A ✓

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	ND	500	489	98	500	513	103	5	65-135	35

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	QC LIMIT (%)
Hexacosane	25	25.4	101	25	26.8	107	65-135

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 1441
BATCH NO.: 06A173
METHOD: METHOD 3550B/8015B

MATRIX: SOIL % MOISTURE: 3.2
DILUTION FACTOR: 1 1
SAMPLE ID: 0003-077
LAB SAMP ID: A173-09 A173-09M A173-09S
LAB FILE ID: TA31055A TA31056A TA31057A
DATE EXTRACTED: 02/01/0612:00 02/01/0612:00 02/01/0612:00 DATE COLLECTED: 01/31/06
DATE ANALYZED: 02/02/0604:10 02/02/0604:52 02/02/0605:33 DATE RECEIVED: 01/31/06
PREP. BATCH: DSB001S DSB001S DSB001S
CALIB. REF: TA31053A TA31053A TA31053A

ACCESSION:

PARAMETER	SAMPL RSLT (mg/kg)	SPIKE AMT (mg/kg)	MS RSLT (mg/kg)	MS % REC	SPIKE AMT (mg/kg)	MSD RSLT (mg/kg)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	1340	517	2000	129	517	2000	128	0	65-135	35

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	MS RSLT (mg/kg)	MS % REC	SPIKE AMT (mg/kg)	MSD RSLT (mg/kg)	MSD % REC	QC LIMIT (%)
Hexacosane	25.8	28.1	109	25.8	28.2	109	65-135

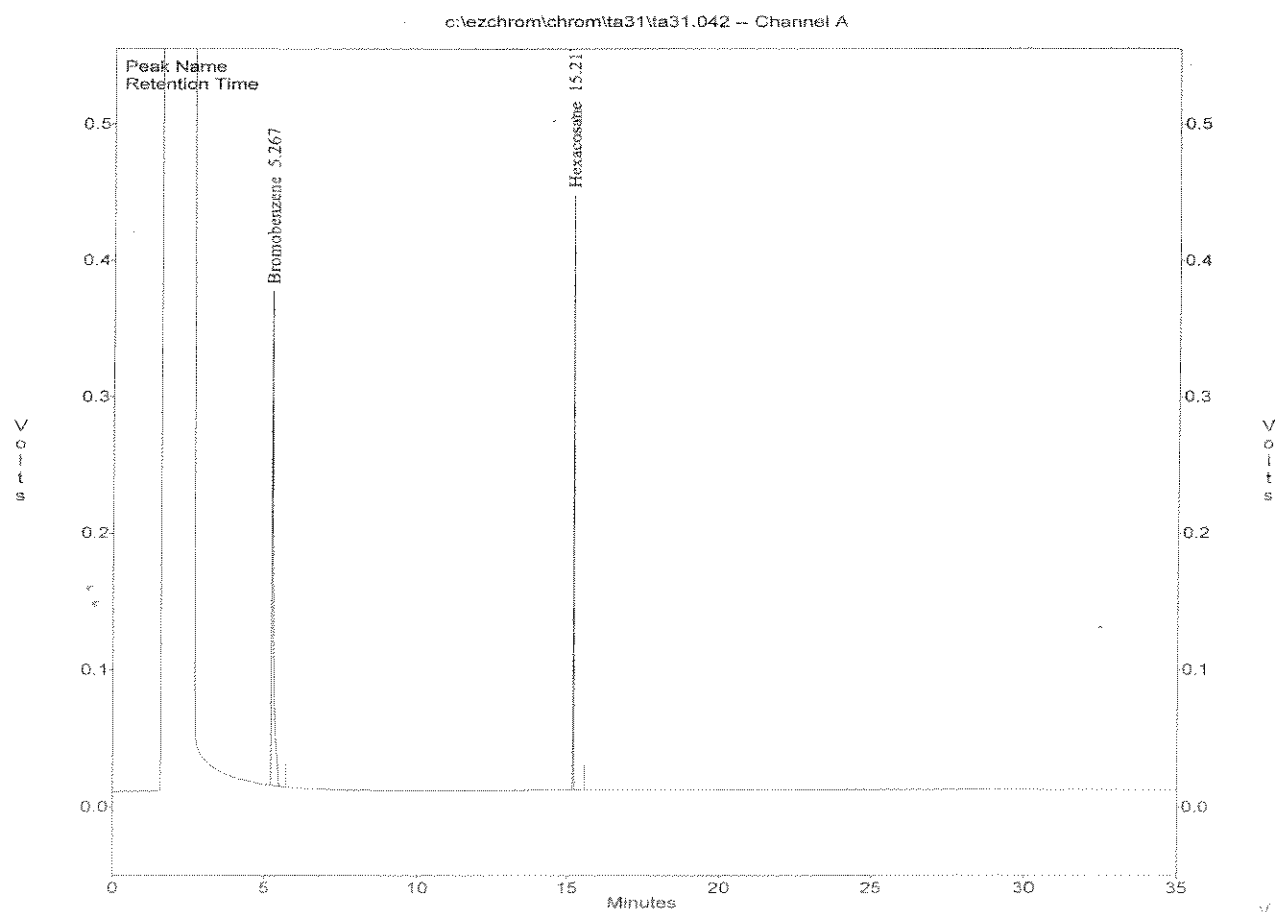
QC DATA

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.042
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : DSB001SB
Acquired : Feb 01, 2006 19:04:01
Printed : Feb 02, 2006 10:30:39
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	5.267	1379711	14214.3	97.1
2	Hexacosane	15.217	746008	28984.5	25.7
G1	Diesel(TOTAL)		0	26500.7	0.0
G2	Diesel(C10-C24)		0	26460.6	0.0
G3	Diesel(C10-C28)		0	26478.8	0.0



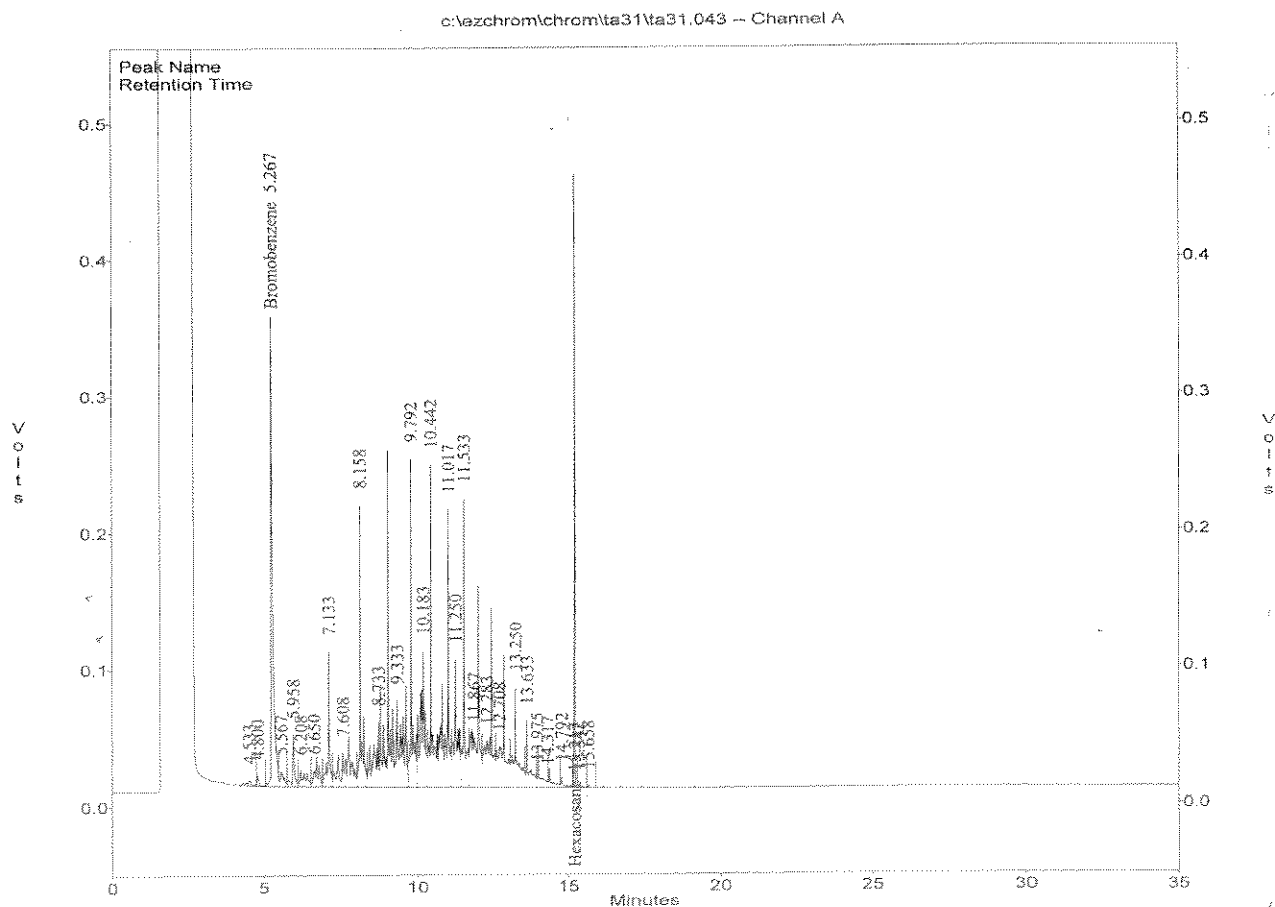
5021

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.043
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : DSB001SL
Acquired : Feb 01, 2006 19:46:07
Printed : Feb 02, 2006 10:31:03
User : JANE

Channel A Results

#	Peak Name	Ret.Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
3	Bromobenzene	5.267	1379659	14214.3	97.1
27	Hexacosane	15.217	735127	28984.5	25.4
G1	Diesel (TOTAL)		13073336	26500.7	493.3
G2	Diesel (C10-C24)		12931338	26460.6	488.7
G3	Diesel (C10-C28)		12978767	26478.8	490.2

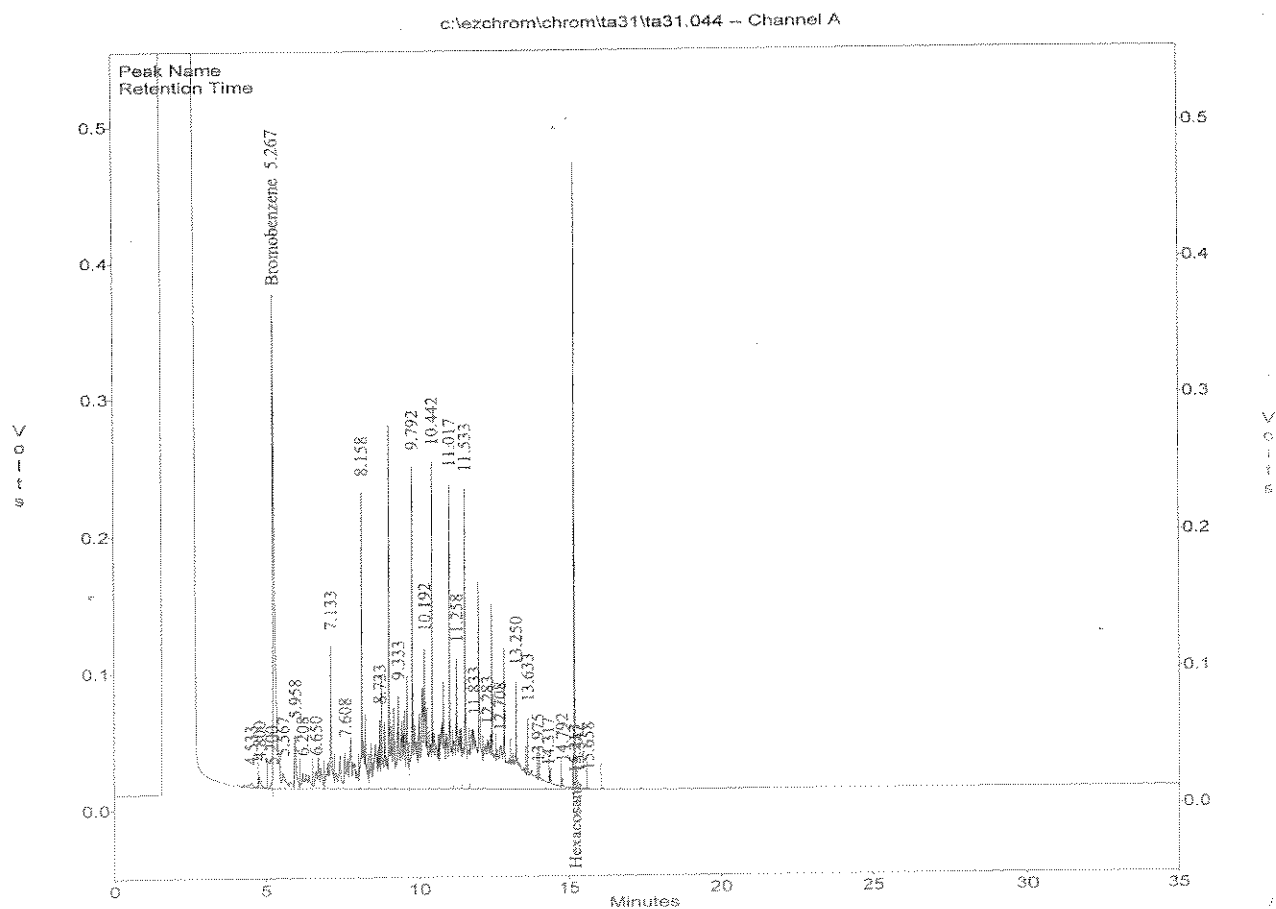


METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.044
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : DSB001SC
Acquired : Feb 01, 2006 20:28:14
Printed : Feb 02, 2006 10:31:39
User : JANE

Channel A Results

#	Peak Name	Ret. Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
4	Bromobenzene	5.267	1412557	14214.3	99.4
28	Hexacosane	15.217	777972	28984.5	26.8
G1	Diesel (TOTAL)		13713230	26500.7	517.5
G2	Diesel (C10-C24)		13571386	26460.6	512.9
G3	Diesel (C10-C28)		13623372	26478.8	514.5

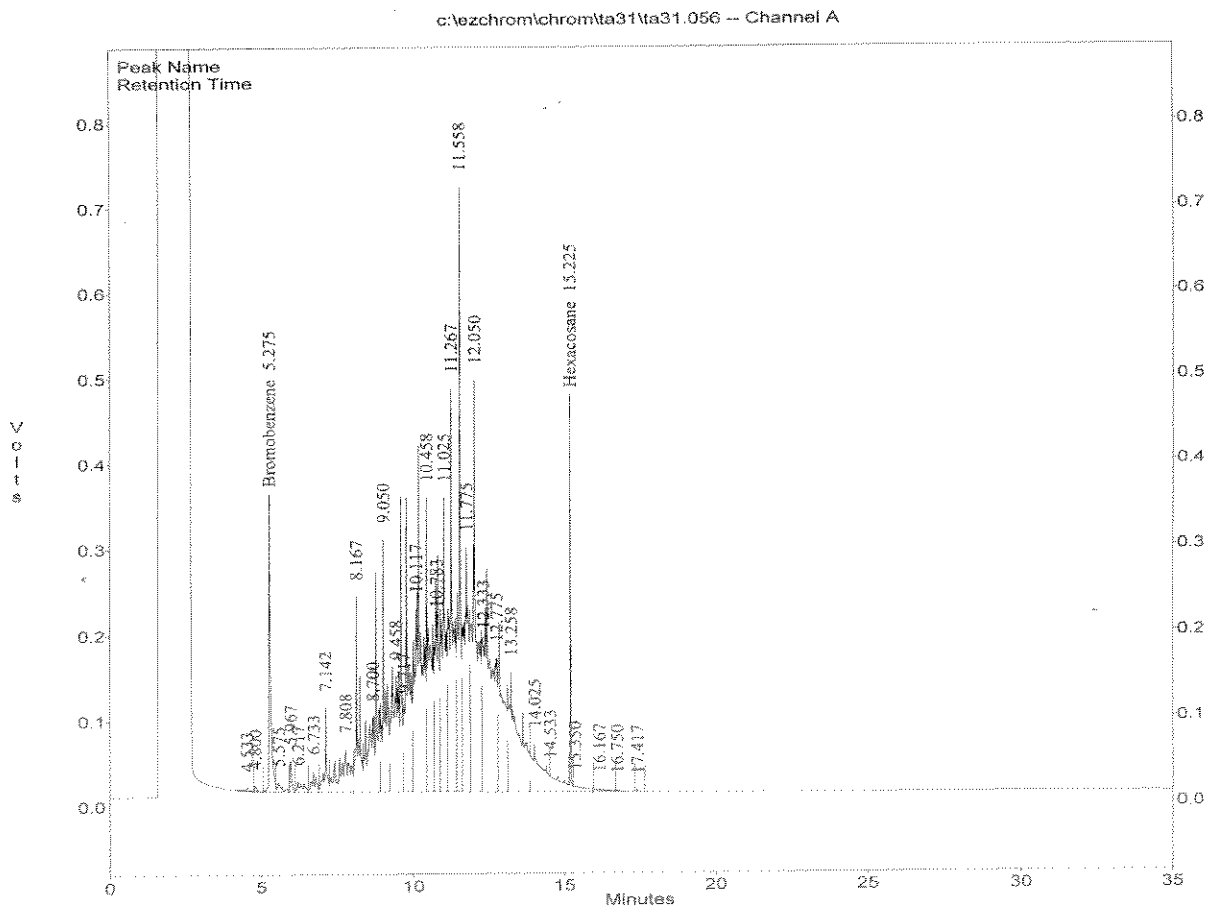


METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.056
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : 06A173-09M
Acquired : Feb 02, 2006 04:52:09
Printed : Feb 02, 2006 10:46:23
User : JANE

Channel A Results

#	Peak Name	Ret. Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
3	Bromobenzene	5.275	1345322	14214.3	94.6
28	Hexacosane	15.225	787386	28984.5	27.2
G1	Diesel (TOTAL)		51980144	26500.7	1961.5
G2	Diesel (C10-C24)		51296764	26460.6	1938.6
G3	Diesel (C10-C28)		51870912	26478.8	1959.0



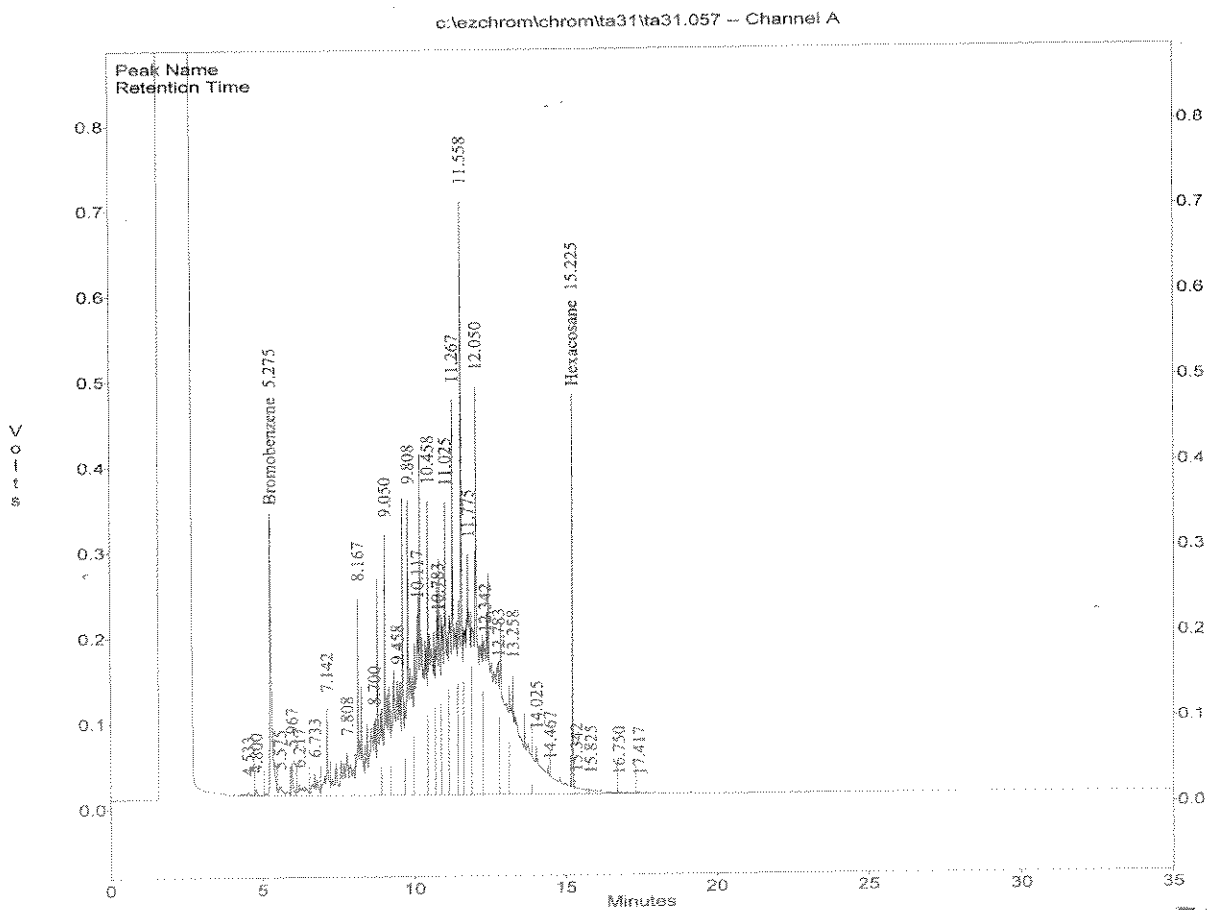
5024
520256

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.057
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : 06A173-098
Acquired : Feb 02, 2006 05:33:58
Printed : Feb 02, 2006 10:47:10
User : JANE

Channel A Results

#	Peak Name	Ret.Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
3	Bromobenzene	5.275	1340121	14214.3	94.3
28	Hexacosane	15.225	792555	28984.5	27.3
G1	Diesel (TOTAL)		52029848	26500.7	1963.3
G2	Diesel (C10-C24)		51175992	26460.6	1934.0
G3	Diesel (C10-C28)		51895720	26478.8	1959.9



5025

02 02 06

INITIAL CALIBRATION

INITIAL CALIBRATION
METHOD M8015

Lab Name : EMAX Inc
Instrument ID : GCT050
GC Column : DB-5
Column size ID : 30MX0.25MM
LFID & Datetime: TA31009A 01/31/06 19:57
LFID & Datetime: TA31010A 01/31/06 20:39
LFID & Datetime: TA31004A 01/31/06 16:26
LFID & Datetime: TA31005A 01/31/06 17:08
LFID & Datetime: TA31006A 01/31/06 17:51
LFID & Datetime: TA31007A 01/31/06 18:33
LFID & Datetime: TA31008A 01/31/06 19:15
CONC UNIT: ppm

COMPOUND	CONC X	CALIBRATION FACTORS (AREA or HEIGHT)/UNIT							MEAN	%RSD
		1.00X	2.00X	10.00X	20.00X	100.00X	300.00X	600.00X		
DIESEL(TOTAL)	5.00	29695	33603	21928	26105	23350	24931	25894	26500.7	15.0
DIESEL(C10-C24)	5.00	29695	33603	21896	26080	23330	24845	25775	26460.6	15.1
DIESEL(C10-C28)	5.00	29695	33603	21928	26105	23350	24872	25800	26478.8	15.0
SURROGATE	X	0.50X	1.00X	2.00X	3.00X	5.00X	7.00X	11.00X	MEAN	%RSD
BROMOBENZENE	20.00	-1	13517	14356	15142	13341	14495	14436	14214.3	4.7
HEXACOSANE	5.00	-1	29580	29371	31178	27128	28544	28106	28984.5	4.8

DS50A31.MET

25027
2/1/06

INITIAL CALIBRATION
METHOD M8015

Lab Name : EMAX Inc
Instrument ID : GCT050
GC Column : DB-5
Column size ID : 30MX0.25MM
LFID & Datetime: TA31009A 01/31/06 19:57
LFID & Datetime: TA31010A 01/31/06 20:39
LFID & Datetime: TA31004A 01/31/06 16:26
LFID & Datetime: TA31005A 01/31/06 17:08
LFID & Datetime: TA31006A 01/31/06 17:51
LFID & Datetime: TA31007A 01/31/06 18:33
LFID & Datetime: TA31008A 01/31/06 19:15

COMPOUND	RT OF STANDARDS (MIN)							MEAN RT	RT WINDOW		RTWINDOW WIDTH
	1.0X	2.0X	10.0X	20.0X	100.0X	300.0X	600.0X		FROM	TO	
DIESEL(TOTAL)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
DIESEL(C10-C24)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
DIESEL(C10-C28)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
SURROGATE	0.5X	1.0X	2.0X	3.0X	5.0X	7.0X	11.0X	RT	FROM	TO	WIDTH
BROMOBENZENE	-1	5.267	5.267	5.267	5.275	5.275	5.283	5.272	5.185	5.359	0.087
HEXACOSANE	-1	15.217	15.217	15.217	15.225	15.233	15.233	15.224	14.891	15.557	0.333

DS50A31.MET

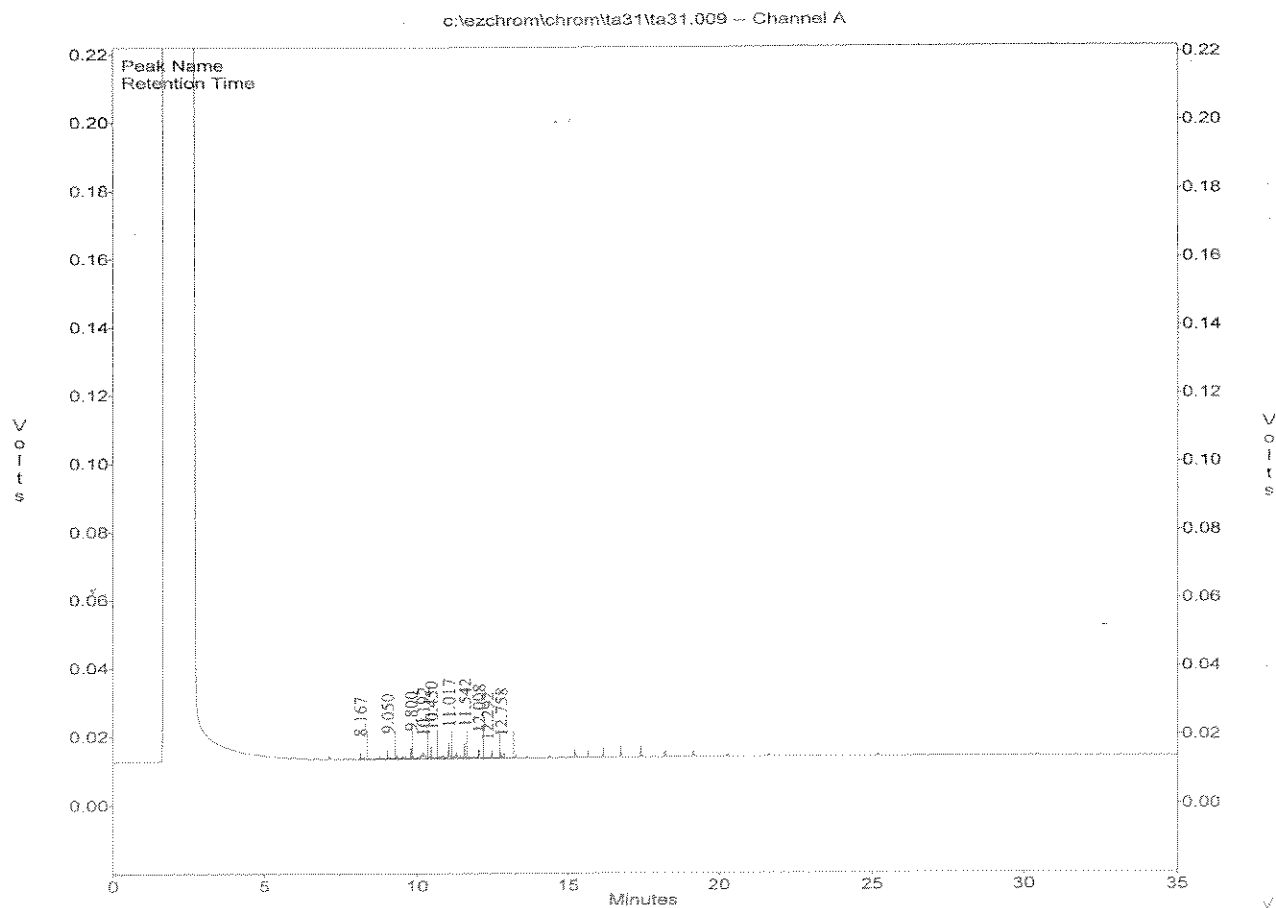
5028
As
2/1/06

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.009
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : DS50A3101 5PPM
Acquired : Jan 31, 2006 19:57:35
Printed : Feb 01, 2006 09:34:38
User : JANE

Channel A Results

#	Peak Name	Ret.Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
--	Bromobenzene	5.283	0	0.0	0.0
--	Hexacosane	15.233	0	0.0	0.0
G1	Diesel (TOTAL)		148474	26500.7	5.0
G2	Diesel (C10-C24)		148474	26460.6	5.0
G3	Diesel (C10-C28)		148474	26478.8	5.0



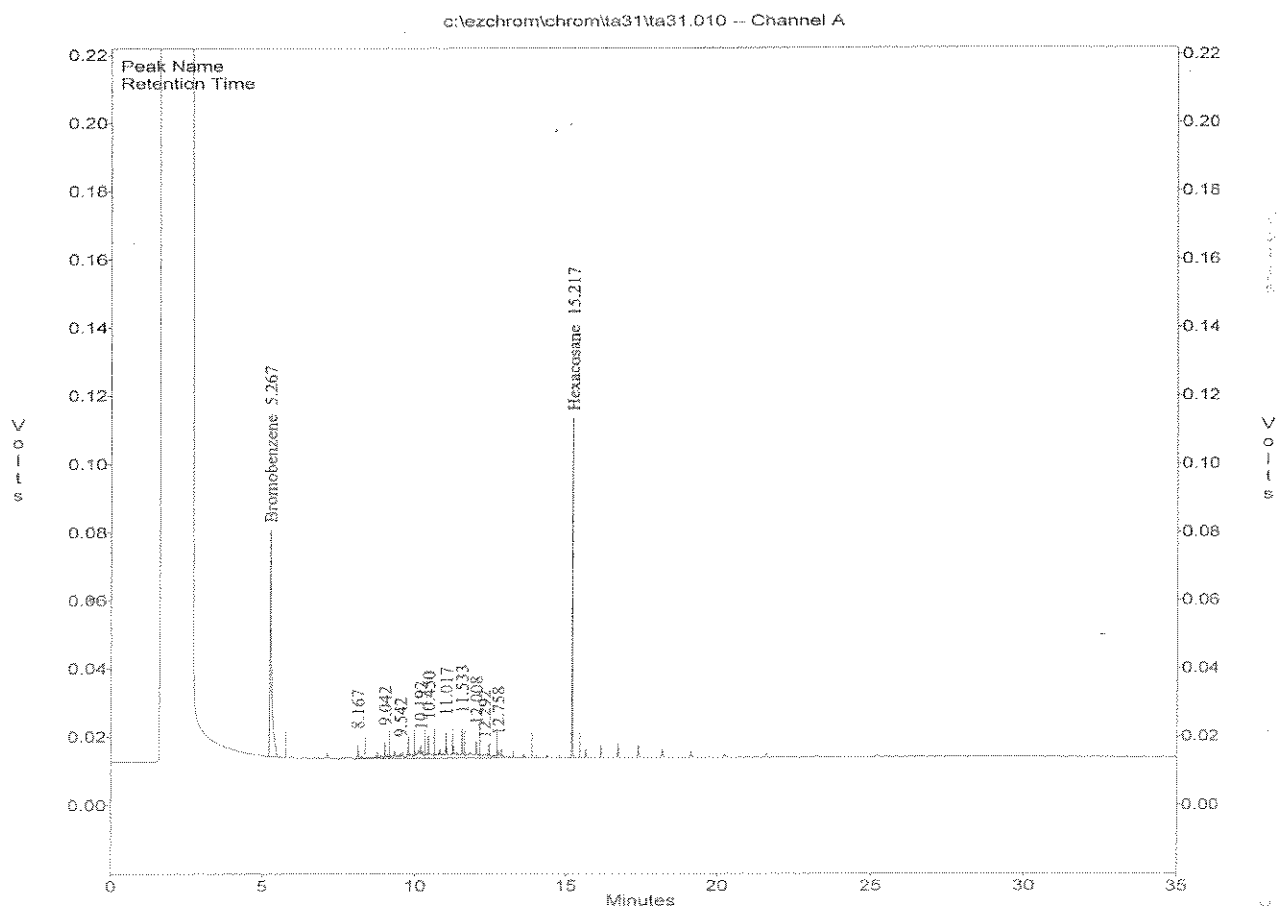
5029
02/01/06

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.010
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : DS50A3102 10/20/5
Acquired : Jan 31, 2006 20:39:42
Printed : Feb 01, 2006 09:34:43
User : JANE

Channel A Results

#	Peak Name	Ret. Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	5.267	270334	14214.3	20.0
12	Hexacosane	15.217	147901	28984.5	5.0
G1	Diesel (TOTAL)		336030	26500.7	10.0
G2	Diesel (C10-C24)		336030	26460.6	10.0
G3	Diesel (C10-C28)		336030	26478.8	10.0



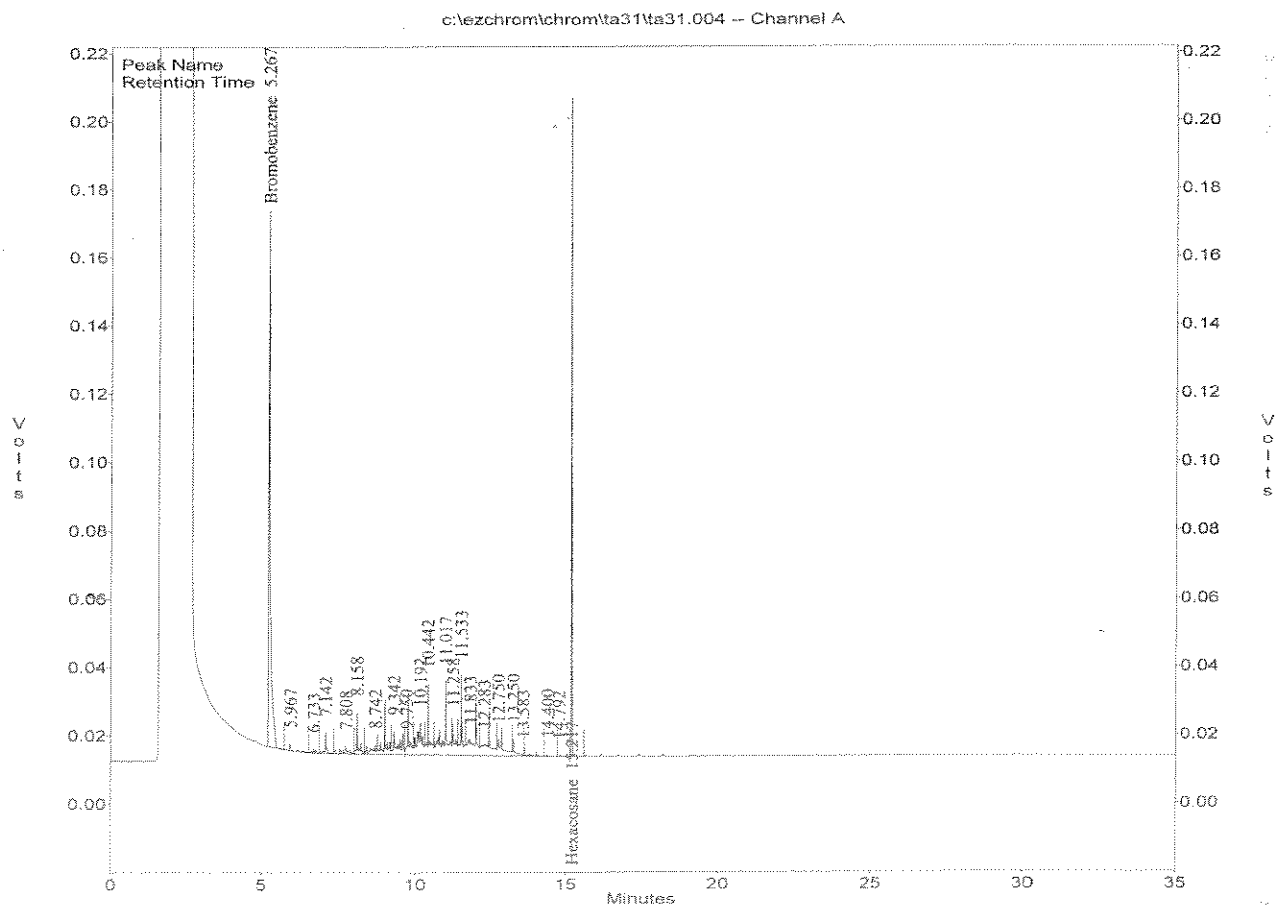
DS 5030
02/01/06

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.004
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : DS50A3103 50/40/10
Acquired : Jan 31, 2006 16:26:47
Printed : Feb 01, 2006 09:34:49
User : JANE

Channel A Results

#	Peak Name	Ret. Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	5.267	574237	14214.3	40.0
22	Hexacosane	15.217	293707	28984.5	10.0
G1	Diesel (TOTAL)		1096379	26500.7	50.0
G2	Diesel (C10-C24)		1094793	26460.6	50.0
G3	Diesel (C10-C28)		1096379	26478.8	50.0



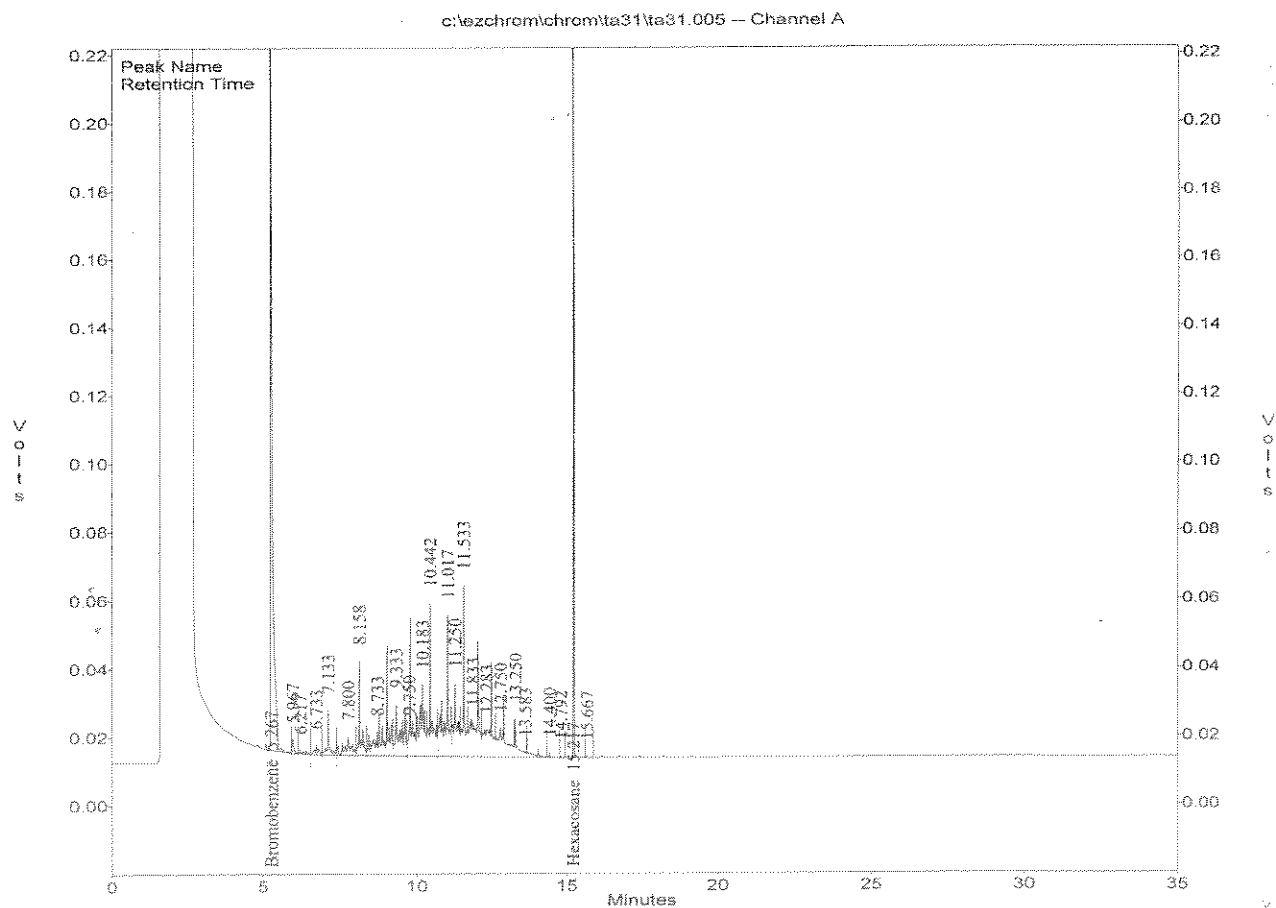
Net 5031
02/01/06

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.005
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : DS50A3104 100/60/15
Acquired : Jan 31, 2006 17:08:56
Printed : Feb 01, 2006 09:35:08
User : JANE

Channel A Results

#	Peak Name	Ret.Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	5.267	908499	14214.3	60.0
23	Hexacosane	15.217	467670	28984.5	15.0
G1	Diesel (TOTAL)		2610524	26500.7	100.0
G2	Diesel (C10-C24)		2608042	26460.6	100.0
G3	Diesel (C10-C28)		2610524	26478.8	100.0



DS 5032
02/01/06

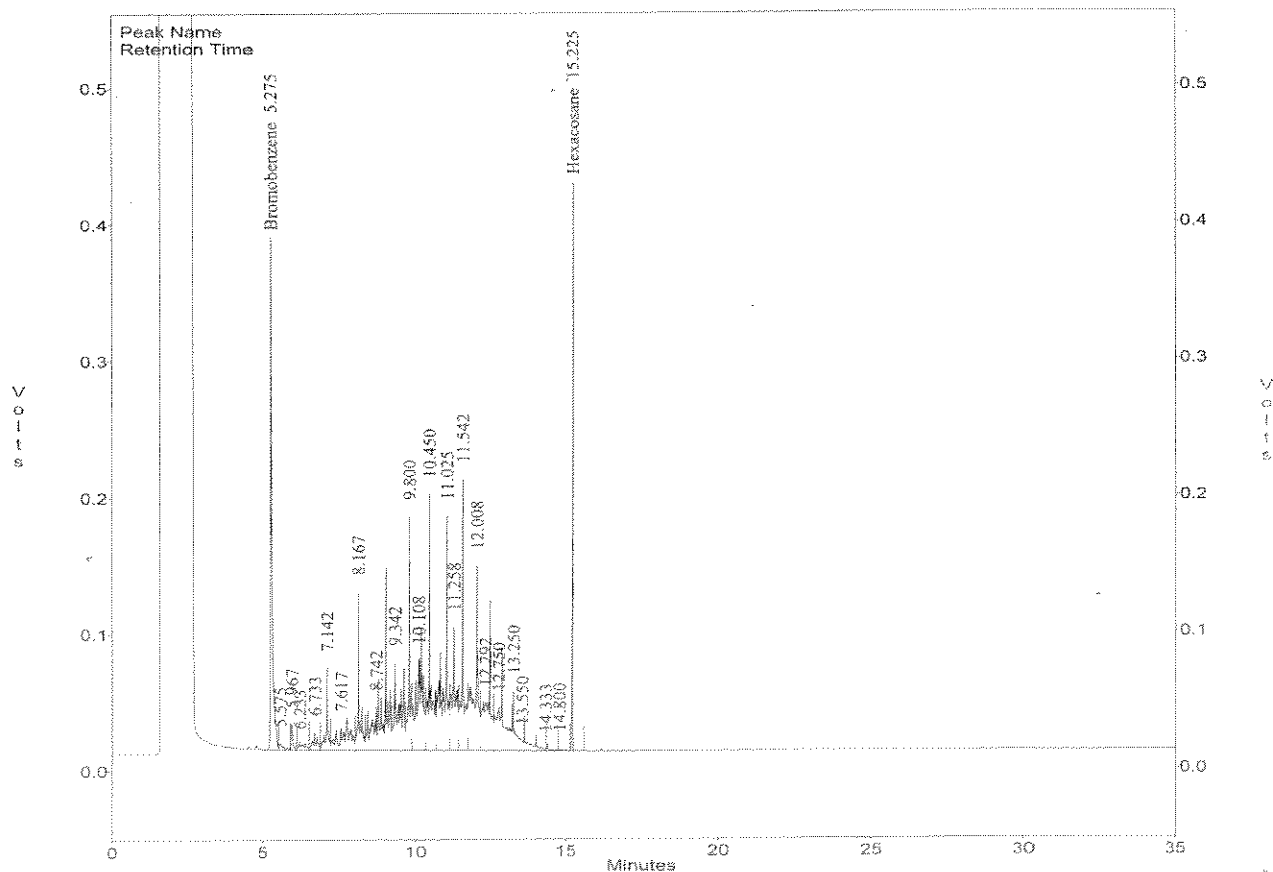
METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.006
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : DS50A3105 500/100/2
Acquired : Jan 31, 2006 17:51:21
Printed : Feb 01, 2006 09:35:17
User : JANE

Channel A Results

#	Peak Name	Ret.Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	5.275	1334115	14214.3	100.0
24	Hexacosane	15.225	678205	28984.5	25.0
G1	Diesel (TOTAL)		11674800	26500.7	500.0
G2	Diesel (C10-C24)		11665009	26460.6	500.0
G3	Diesel (C10-C28)		11674800	26478.8	500.0

c:\ezchrom\chrom\ta31\ta31.006 -- Channel A



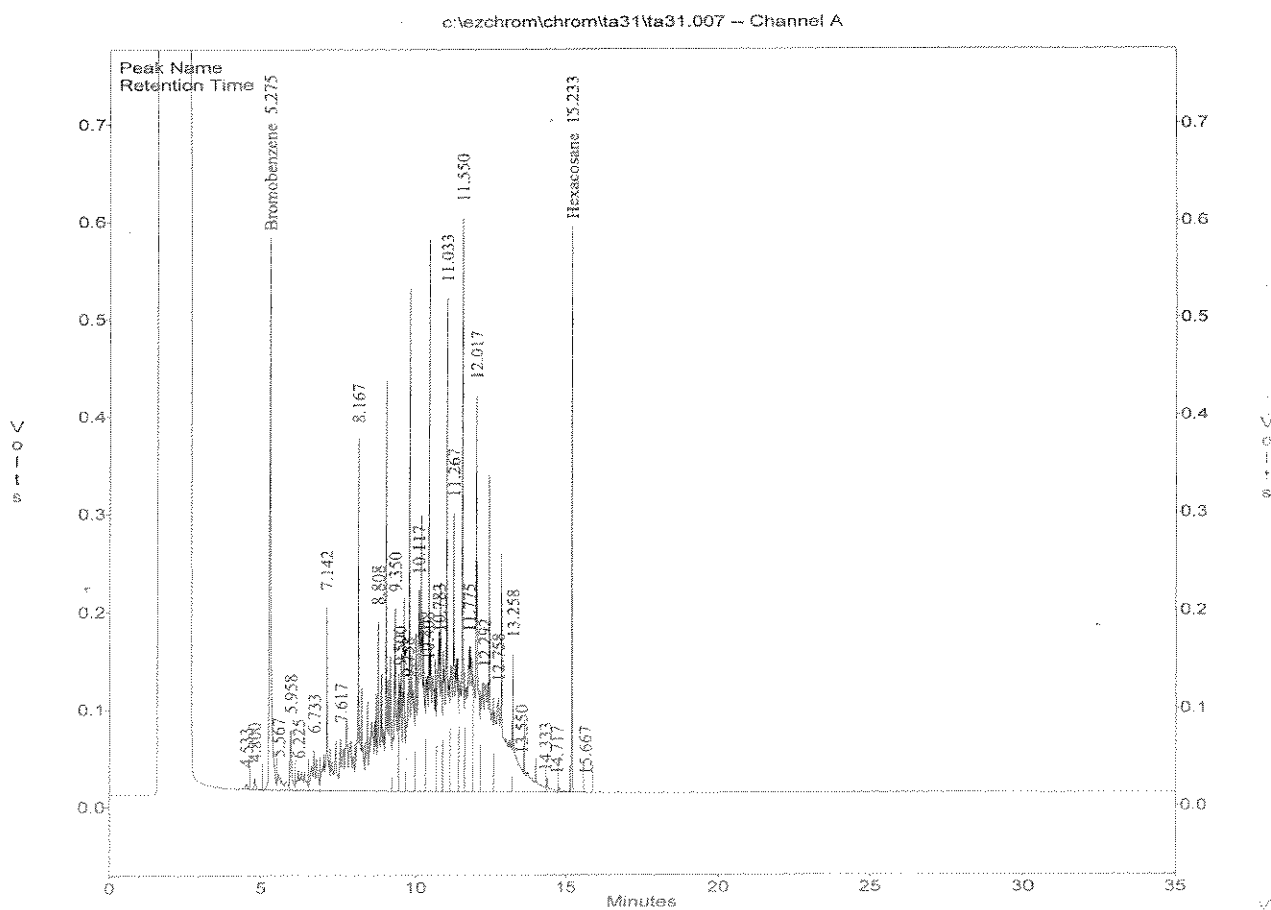
5033
02/01/06

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.007
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : DS50A3106 1500/140/
Acquired : Jan 31, 2006 18:33:25
Printed : Feb 01, 2006 09:35:43
User : JANE

Channel A Results

#	Peak Name	Ret.Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
3	Bromobenzene	5.275	2029250	14214.3	140.0
29	Hexacosane	15.233	999027	28984.5	35.0
G1	Diesel (TOTAL)		37395864	26500.7	1500.0
G2	Diesel (C10-C24)		37267404	26460.6	1500.0
G3	Diesel (C10-C28)		37307612	26478.8	1500.0

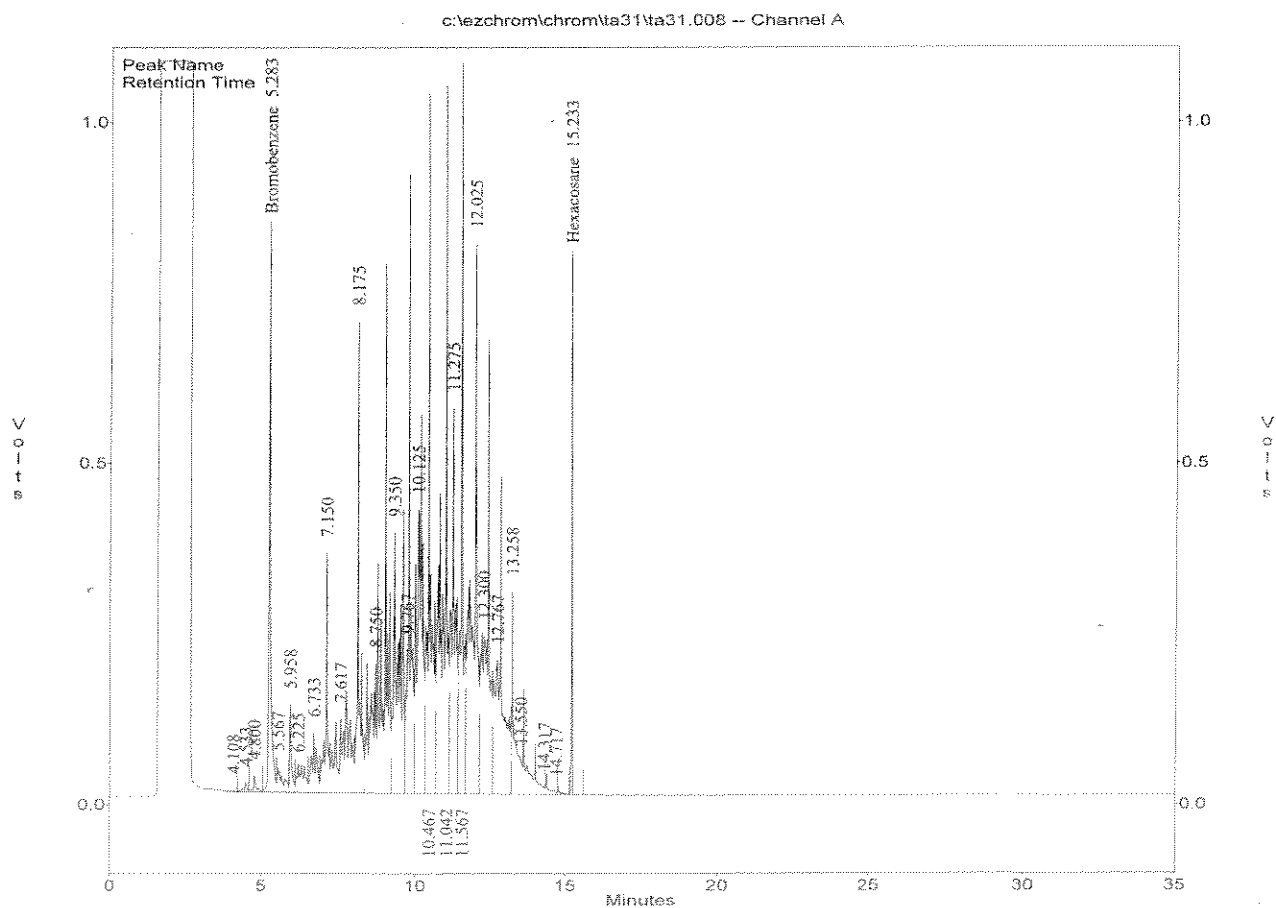


METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.008
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : DS50A3107 3000/220/
Acquired : Jan 31, 2006 19:15:30
Printed : Feb 01, 2006 09:35:51
User : JANE

Channel A Results

#	Peak Name	Ret.Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
4	Bromobenzene	5.283	3175897	14214.3	220.0
27	Hexacosane	15.233	1545839	28984.5	55.0
G1	Diesel (TOTAL)		77682664	26500.7	3000.0
G2	Diesel (C10-C24)		77324912	26460.6	3000.0
G3	Diesel (C10-C28)		77399448	26478.8	3000.0



5035
DA
2/01/06

SECOND SOURCE

INITIAL CALIBRATION VERIFICATION
METHOD M8015

Lab Name : EMAX
Instrument ID : GCT050
GC Column : DB-5
Column size ID : 30MX0.25MM
Mid Conc Init LFID & Datetime: TA31006A 01/31/2006 17:51
Conc Cont LFID & Datetime: TA31011A 01/31/2006 21:21
CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
DIESEL(TOTAL)	0.000	0.000	0.000	500.0	26500.7	13255810	500.21	0		15
DIESEL(C10-C24)	0.000	0.000	0.000	500.0	26460.6	13131692	496.27	-1		15
DIESEL(C10-C28)	0.000	0.000	0.000	500.0	26478.8	13174570	497.55	-0		15
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
BROMOBENZENE	5.275	5.188	5.362	100.0	14214.3	1337667	94.11	-6		15
HEXACOSANE	15.225	14.892	15.558	25.0	28984.5	687118	23.71	-5		15

DS50A31.MET

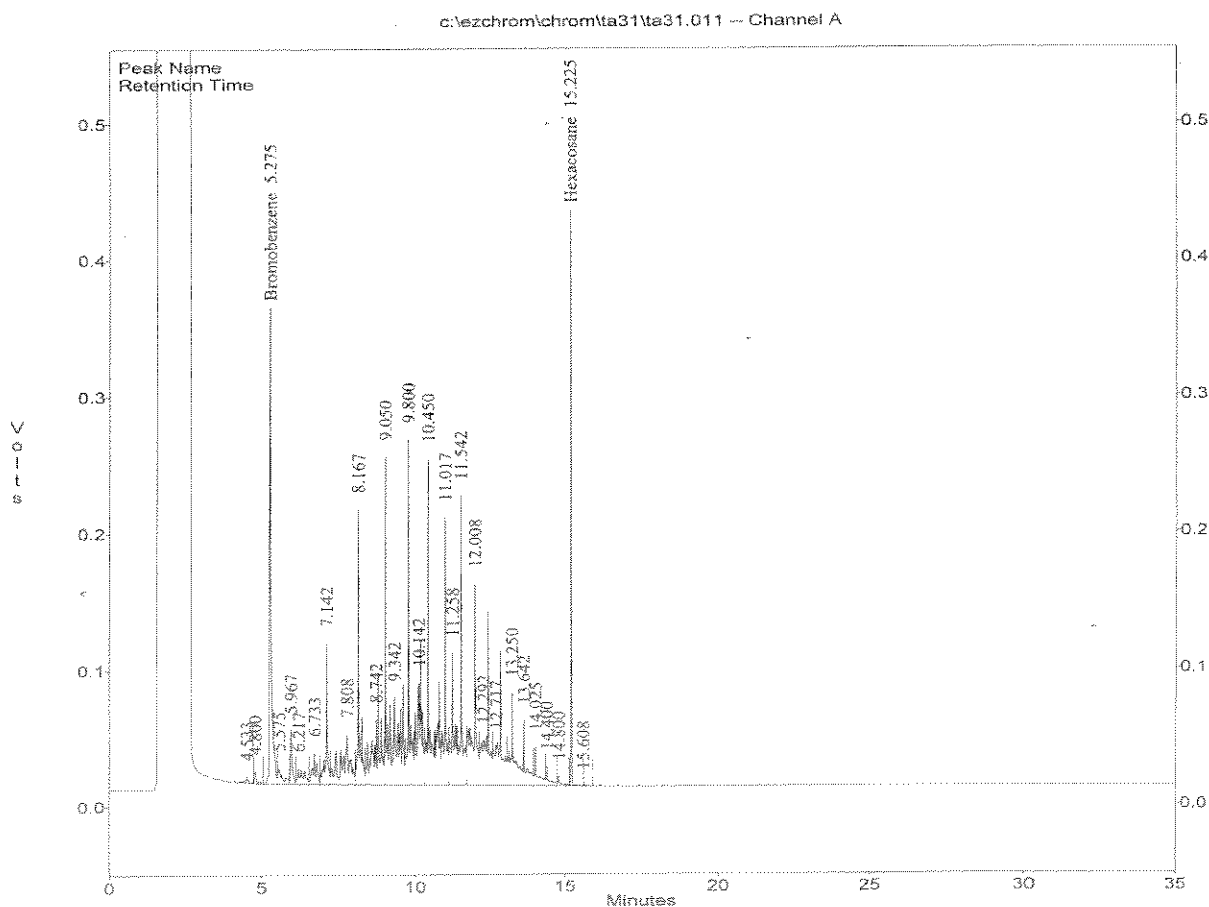
LA 5037
02/01/06

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.011
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : IDS50A3101 500PPM
Acquired : Jan 31, 2006 21:21:44
Printed : Feb 01, 2006 09:36:17
User : JANE

Channel A Results

#	Peak Name	Ret.Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
3	Bromobenzene	5.275	1337667	14214.3	94.1
28	Hexacosane	15.225	687118	28984.5	23.7
G1	Diesel (TOTAL)		13255810	26500.7	500.2
G2	Diesel (C10-C24)		13131692	26460.6	496.3
G3	Diesel (C10-C28)		13174570	26478.8	497.6



AS 5038
02/01/06

INITIAL CALIBRATION VERIFICATION
METHOD MB015

Lab Name : EMAX
Instrument ID : GCT050
GC Column : DB-5
Column size ID : 30MX0.25MM
Mid Conc Init LFID & Datetime: TA31007A 01/31/2006 18:33
Conc Cont LFID & Datetime: TA31012A 01/31/2006 22:03
CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW FROM TO		TRUE CONC	AVERAGE CF	RESULT AREA CONC		%D	QL	%D LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
DIESEL(TOTAL)	0.000	0.000	0.000	1500.0	26500.7	40011184	1509.81	1		15
DIESEL(C10-C24)	0.000	0.000	0.000	1500.0	26460.6	39560264	1495.06	-0		15
DIESEL(C10-C28)	0.000	0.000	0.000	1500.0	26478.8	39688336	1498.87	-0		15
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
BROMOBENZENE	5.275	5.188	5.362	140.0	14214.3	1999372	140.66	0		15
HEXACOSANE	15.233	14.900	15.566	35.0	28984.5	989691	34.15	-2		15

DS50A31.MET

5039

As
02/01/06

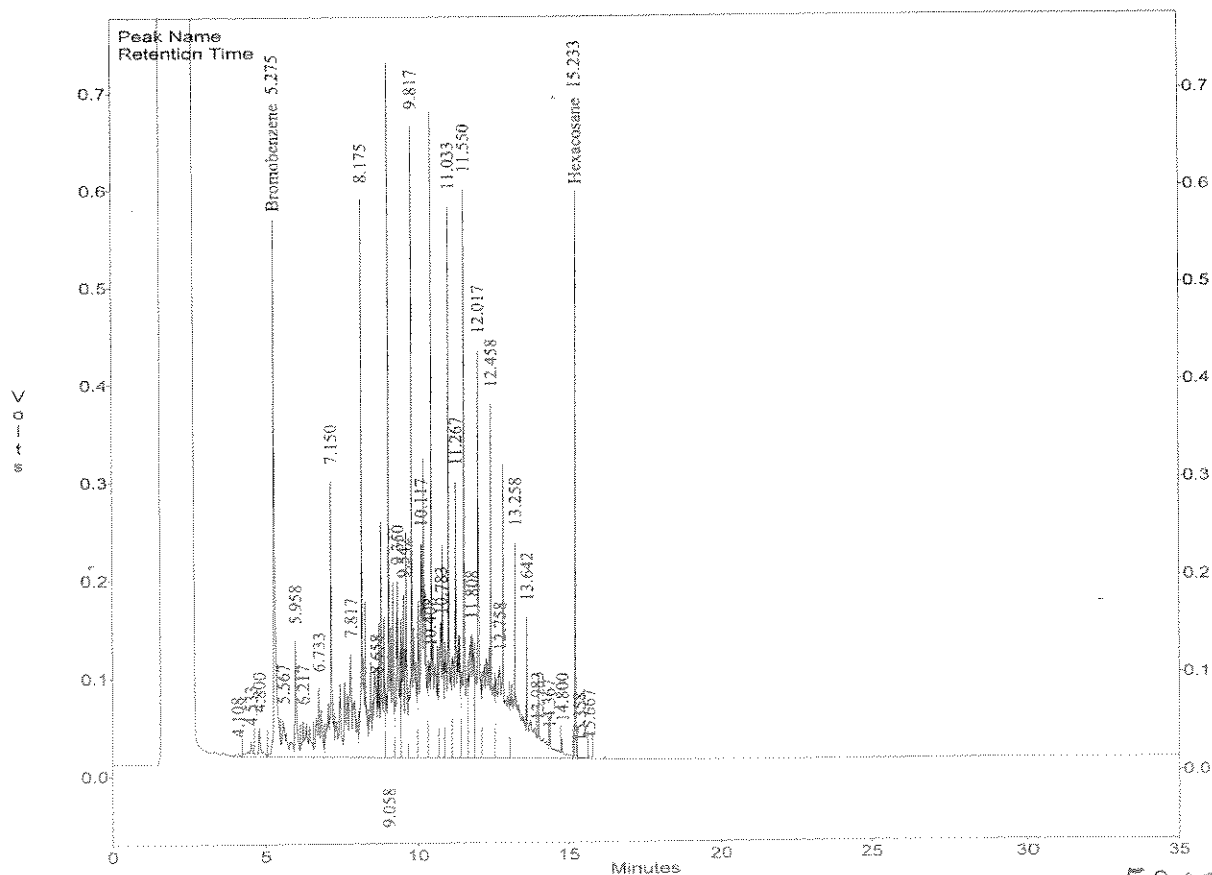
METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.012
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : IDS50A3102 1500PPM
Acquired : Jan 31, 2006 22:03:47
Printed : Feb 01, 2006 09:36:33
User : JANE

Channel A Results

#	Peak Name	Ret.Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
4	Bromobenzene	5.275	1999372 ✓	14214.3	140.7 ✓
32	Hexacosane	15.233	989691 ✓	28984.5	34.1 ✓
G1	Diesel (TOTAL)		40011184 ✓	26500.7	1509.8 ✓
G2	Diesel (C10-C24)		39560264 ✓	26460.6	1495.1 ✓
G3	Diesel (C10-C28)		39688336 ✓	26478.8	1498.9 ✓

c:\ezchrom\chrom\ta31\ta31.012 -- Channel A



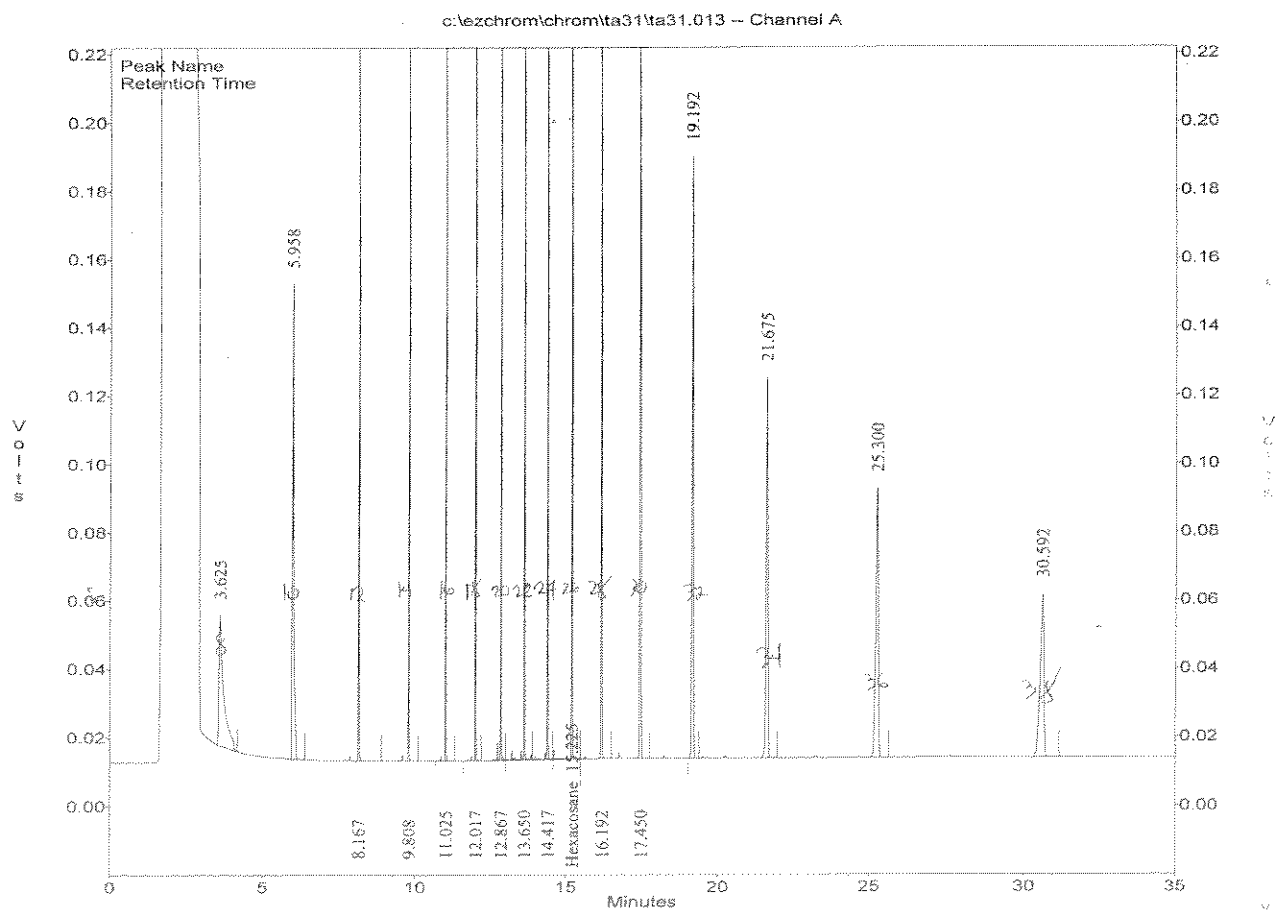
AS 5040
02/01/06

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\ta31.013
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : HC-CHAIN
Acquired : Jan 31, 2006 22:45:44
Printed : Feb 01, 2006 09:38:59
User : JANE

Channel A Results

#	Peak Name	Ret.Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
--	Bromobenzene	5.283	0	0.0	0.0
10	Hexacosane	15.225	612551	28984.5	21.1
G1	Diesel (TOTAL)		7808933	26500.7	294.7
G2	Diesel (C10-C24)		4312145	26460.6	163.0
G3	Diesel (C10-C28)		4904687	26478.8	185.2



5041
At
02/01/06

DAILY CALIBRATION

CONTINUE CALIBRATION
METHOD MB015

Lab Name : EMAX
Instrument ID : GCT050
GC Column : DB-5
Column size ID : 30MX0.25MM
Mid Conc Init LFID & Datetime: TA31006A 01/31/2006 17:51
Conc Cont LFID & Datetime: TA31038A 02/01/2006 16:15
CONC UNIT : ppm

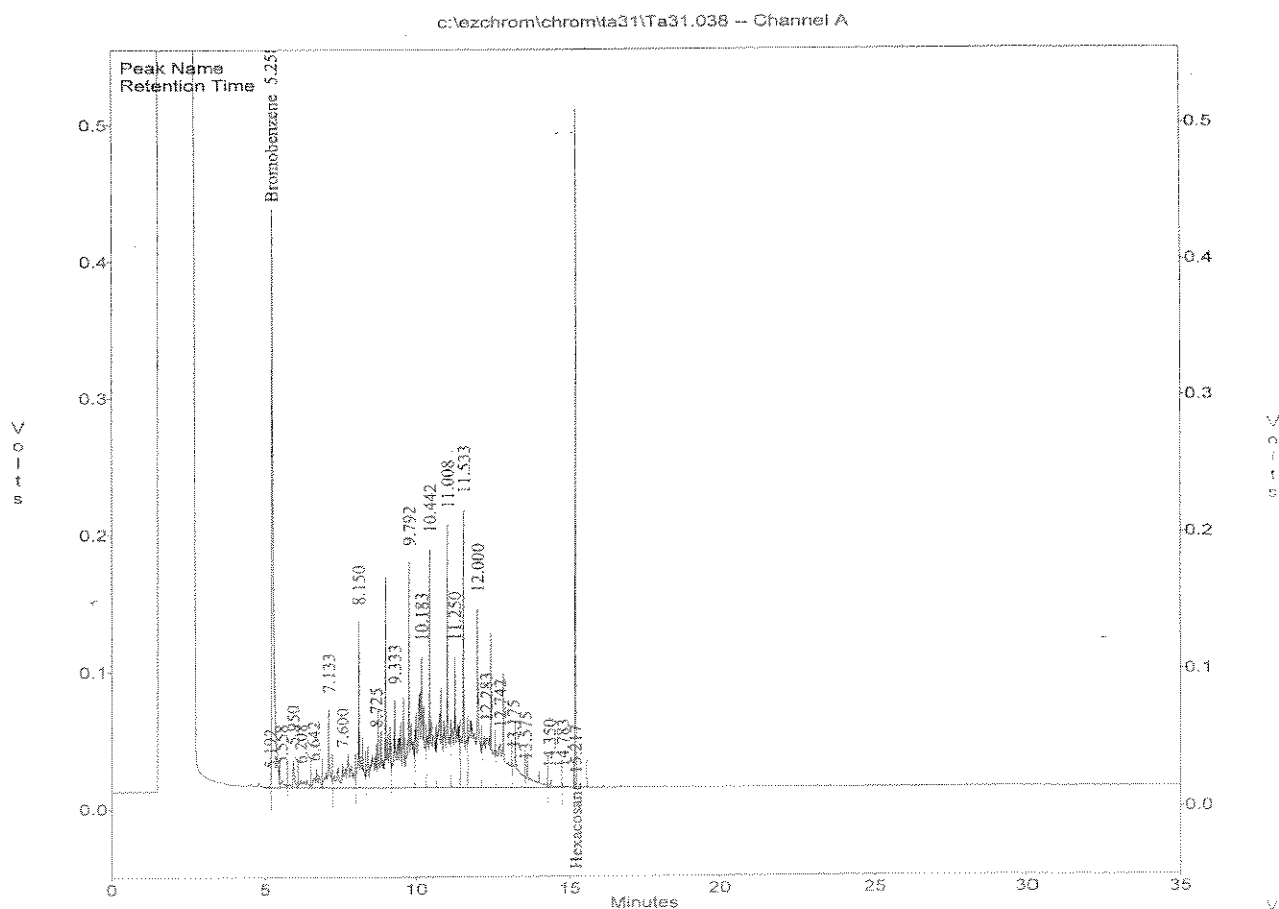
COMPOUND	RT MINUTES	RT WINDOW FROM TO		TRUE CONC	AVERAGE CF	RESULT AREA CONC		%D	QL	%D LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
DIESEL(TOTAL)	0.000	0.000	0.000	500.0	26500.7	12211071	460.78	-8		15
DIESEL(C10-C24)	0.000	0.000	0.000	500.0	26460.6	12104211	457.44	-9		15
DIESEL(C10-C28)	0.000	0.000	0.000	500.0	26478.8	12117903	457.64	-8		15
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
BROMOBENZENE	5.258	5.171	5.345	100.0	14214.3	1707543	120.13	20		
HEXACOSANE	15.217	14.884	15.550	25.0	28984.5	798221	27.54	10		

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\Ta31.038
Method : c:\ezchrom\methods\Ds50a31.met
Sample ID : CDS50A19340 D500 95 07-02-04
Acquired : Feb 01, 2006 16:15:35
Printed : Feb 01, 2006 16:50:38
User : JANE

Channel A Results

#	Peak Name	Ret.Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
2	Bromobenzene	5.258	1707543	14214.3	120.1
25	Hexacosane	15.217	798221	28984.5	27.5
G1	Diesel (TOTAL)		12211071	26500.7	460.8
G2	Diesel (C10-C24)		12104211	26460.6	457.4
G3	Diesel (C10-C28)		12117903	26478.8	457.6



5044

CONTINUE CALIBRATION
METHOD M8015

Lab Name : EMAX
Instrument ID : GCT050
GC Column : DB-5
Column size ID : 30MX0.25MM
Mid Conc Init LFID & Datetime: TA31006A 01/31/2006 17:51
Conc Cont LFID & Datetime: TA31053A 02/02/2006 02:46
CONC UNIT : ppm

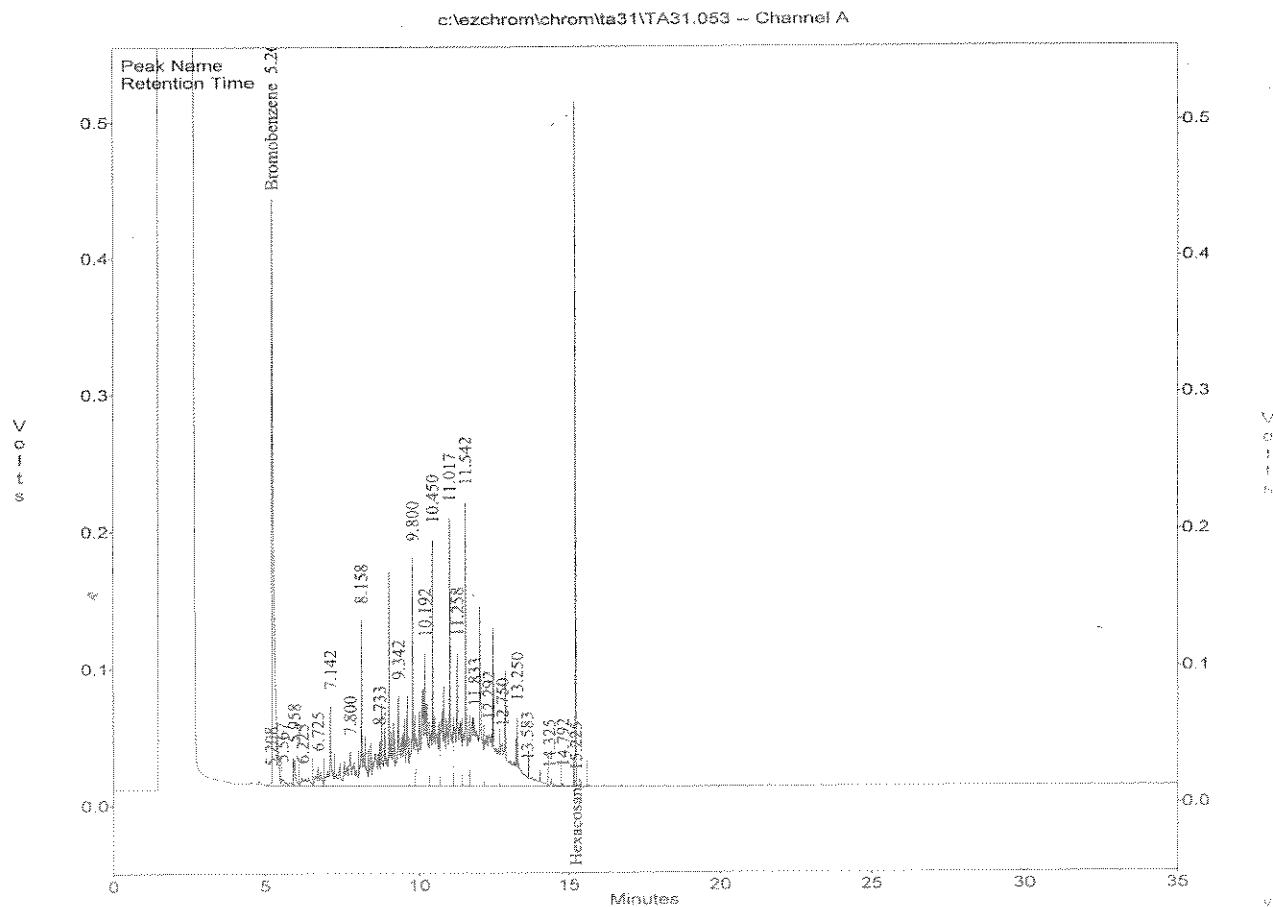
COMPOUND	RT MINUTES	RT WINDOW FROM TO	TRUE CONC	AVERAGE CF	RESULT AREA	CONC	%D	QL	%D LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
DIESEL(TOTAL)	0.000	0.000 0.000	500.0	26500.7	12504781	471.87	-6		15
DIESEL(C10-C24)	0.000	0.000 0.000	500.0	26460.6	12493207	472.14	-6		15
DIESEL(C10-C28)	0.000	0.000 0.000	500.0	26478.8	12504781	472.26	-6		15
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SURROGATE	MINUTES	FROM TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
BROMOBENZENE	5.267	5.180 5.354	100.0	14214.3	1746253	122.85	23		
HEXACOSANE	15.225	14.892 15.558	25.0	28984.5	812429	28.03	12		

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\TA31.053
Method : c:\ezchrom\methods\ds50a31.met ✓
Sample ID : CDS50A31343 D500
Acquired : Feb 02, 2006 02:46:19 ✓
Printed : Feb 02, 2006 11:30:52
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
2	Bromobenzene	5.267	1746253	14214.3	122.9
25	Hexacosane	15.225	812429	28984.5	28.0
G1	Diesel (TOTAL)		12504781	26500.7	471.9
G2	Diesel (C10-C24)		12493207	26460.6	472.1
G3	Diesel (C10-C28)		12504781	26478.8	472.3



5046

CONTINUE CALIBRATION
METHOD M8015

Lab Name : EMAX
Instrument ID : GC1050
GC Column : DB-5
Column size ID : 30MX0.25MM
Mid Conc Init LFID & Datetime: TA31006A 01/31/2006 17:51
Conc Cont LFID & Datetime: TA31064A 02/02/2006 10:27
CONC UNIT : ppm

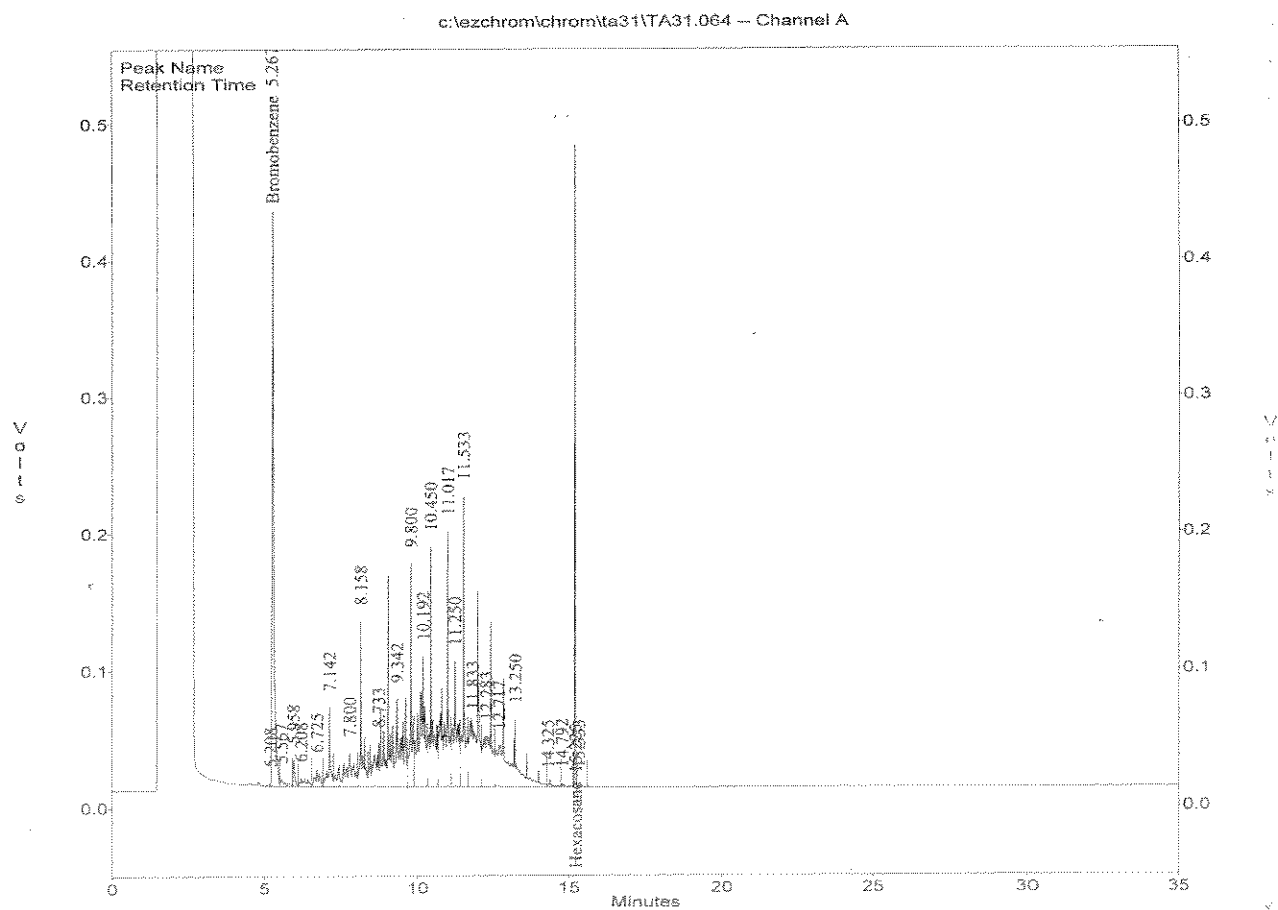
COMPOUND	RT MINUTES	RT WINDOW FROM TO		TRUE CONC	AVERAGE CF	RESULT AREA CONC		%D	QL	%D LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
DIESEL(TOTAL)	0.000	0.000	0.000	500.0	26500.7	12158671	458.80	-8		15
DIESEL(C10-C24)	0.000	0.000	0.000	500.0	26460.6	12143914	458.94	-8		15
DIESEL(C10-C28)	0.000	0.000	0.000	500.0	26478.8	12158671	459.18	-8		15
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
BROMOBENZENE	5.267	5.180	5.354	100.0	14214.3	1689749	118.88	19		
HEXACOSANE	15.225	14.892	15.558	25.0	28984.5	801360	27.65	11		

METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta31\TA31.064
Method : c:\ezchrom\methods\ds50a31.met
Sample ID : CDS50A31345 D500
Acquired : Feb 02, 2006 10:27:51
Printed : Feb 02, 2006 11:30:56
User : JANE

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc. (ppm)
2	Bromobenzene	5.267	1689749	14214.3	118.9
24	Hexacosane	15.225	801360	28984.5	27.6
G1	Diesel (TOTAL)		12158671	26500.7	458.8
G2	Diesel (C10-C24)		12143914	26460.6	458.9
G3	Diesel (C10-C28)		12158671	26478.8	459.2



5048

ANALYTICAL LOGS

ANALYSIS RUN LOG FOR TPH

SOP ☒ EMAX-M8015D Revision No. 3 ☐ EMAX-LUFTE Revision No. 3 ☐ Book # A50-021

Starting Date: 01/31/06 Time: 14:20 Ending Date: 01/31/06 Time: 23:27

Instrument No: 50	
INITIAL CALIBRATION REFERENCE	
Diesel	ID DS9A31 Date 01/31/06
Motor oil	
JP 5	
Standards	
Name	ID
CH ₂ Cl ₂	45257 pure
DCC	
DSL 10AL	5536-07-04-2 5-3000
+ SURR	5015-2015
DSL 10W	5536-07-03-3 5000
Electronic Data Archival	
Location	Date
<input type="checkbox"/> E2C_1_Diesel	
<input type="checkbox"/>	

Comments:

Analyzed By: JD

Disposed on: 02/01/06 By: JD

Preparative Batch	Data File Name	Lab Sample ID	DF	Matrix		Notes
				S	W	
	TA31-001	1850A336				DSL (27M) SURR
	002	DS50A3101				> bad injection
	003	02				
	004	03				50 40/10
	005	04				100 60/15
	006	05				500 100/25
	007	06				1800 140/35
	008	07				2000 200/50
	009	01				5
	010	02				10 20/15
	011	1850A3101				300 100/15 ; DSL 10W
	012	02				1900 140/35 ↓
	013	HC-CHAIN				
	014	MeCl2				
ANALYTICAL BATCH <u>01A</u>						

ANALYSIS RUN LOG FOR TPH

SOP ☒ EMAX-MR015D Revision No. 3 ☐ EMAX-LUFT Revision No. 3 ☐ Book # A50-021

Starting Date: 02/01/06 Time: 06:09 Ending Date: 02/01/06 Time: 16:57

Preparative Batch	Data File Name	Lab Sample ID	DF	Matrix		Notes
				S	W	
	TA31-05	1B9A337				
	016	050A3137				D200
DSA031W	017	DSA031WB	1		✓	
	018	L				
	019	C				
	020	06A135-02				
	021	03				
	022	04				
	023	05				
	024	06				
	025	06A134-01				
	026	SUR CHK ①				SS2C-07-04-1
	027	SUR CHK ②				D200
	028	CD50A31378				10030, 500 PM
	029	CMW021023349				
DSA023W	030	DSA023WQ	1		✓	
	031	X				
	032	Y				
	033	06A091-01W				
	034	03W				
	035	05W				
	036	04W				
	037	02W			✓	
	038	CD50A31340				D200
	039	CMW021023341				10030, 500 PM

ANALYTICAL BATCH CD50A3137

INITIAL CALIBRATION REFERENCE			Instrument No:	50
Diesel	ID	Date		
Motor oil (lux)	DS0A31	01-31-06		
JP 5	MW50K23	1-23-05		
Standards				
Name	ID	Conc. (mg/L)		
CH ₂ Cl ₂	45257	pure		
DCC DSL	SS3C-07-03-2	500		
10030 DCC	SS3C-06-00-2	500		
Electronic Data Archival				
Location	Date			
<input type="checkbox"/> EZC_1_Diesel				
<input type="checkbox"/>				

Comments:

Analyzed By: jo

Disposed on: jo

By: jo

ANALYSIS RUN LOG FOR TPH

Book # A50-021

SOP ☒ EMAX-M801SD Revision No. 3 ☐ EMAX-LUTTE Revision No. 3

SOP of EMAX-M801SD Revision No. 3

EMAX-LUFF Revision No. 3

Book # A50-021

Time: 1:59

Ending Days

Time: 1:39

Starting Date: 02-01-06

Preparative Batch	Data File Name	Lab Sample ID	DF	Matrix		Notes	Instrument No:	INITIAL CALIBRATION REFERENCE		
				S	W			ID	Date	
DSB0015	TA31-040	CJSD0A05M342				JP5/10030; 500 PPM	50	INITIAL CALIBRATION REFERENCE		
	041	B3L SPIC CLK (Autoc)				500 PPM (500.04-04.3)		Diesel	DS50A31	01-01-06
	042	DSB0015B	1	✓				Motor oil		
	043	✓ L						JP 5 10030	JS30/1003M	01-05-06
	044	C								
	045	06A113-03								
	046	04								
	047	05								
DSB0015	048	06					50	Standards		
	049	07						Name	ID	Conc. (mg/L)
	050	08						CH ₂ Cl ₂	JS25T	1000
	051	09						DCC DCL	500L-07-03-2	500
	052	10						JP5/10030PC	JS38-01-02-1	500
	053	03		✓		- light yellow				
	054	1B00B343								
	055	CD550A3134B				DS00				
DSB0015	056	CJSD0A05M344				JP5/10030; 500 PPM	Electronic Data Archival			
	057	06A113-09	1	✓		- light yellow				
	058	09M								
	059	09S								
	060	09M								
	061	09S								
	062	09M								
	063	09S								

ANALYTICAL BATCH CJSD0A134

06A113-09

Comments:

Analyzed By: Q2

Disposed on: 02-22-00

By:

EXTRACTION LOGS

EXTRACTION LOG FOR TPH

SOP ☒ EMAX-3550 Rev. No. 1 ☐ EMAX-3550 Rev. No. 1 ☐ EMAX-1UFT E Rev. No. 1 ☐ EMAX-3540 Rev. No. 9 ☐ EMAX-3510 Rev. No. 1

Matrix: soil Start Date: 02/1/06 Time: 12:00 End Date: 02/1/06 Time: 14:00 Book # EDS-026

Sample Prep ID	Lab Sample ID	Sonicator Number	Sample Amount (g ml)	Extract Volume (ml)	Silica Gel Clean-up	Notes	Standards	ID	Amount Added (ml)
01	DSB001	1	10.00	10			Surrogate	5536-07-0A-1	1.0
02	DSB001	1	10.00	10			LCS/MS	5536-07-03-3	1.0
03	06A173	3	10.10	10			Reagent		
04		3	10.04	10			CH ₂ Cl ₂	45257	
05		3	10.07	10			Na ₂ SO ₄	45045	
06		3	10.08	10			HCl		
07		3	10.10	10			Silica Sand	44028	
08		4	10.05	10			TUNING		
09		3	10.10	10			Sonicator #	Reading	
10		3	10.00	10			1	N/A	
11		3	10.05	10			3	86%	
12		1	10.07	10			2	N/A	
13		1	10.06	10			4	80%	
14		3	10.03	10			Concentrator Water Bath Temp. (C)		
15		3	10.08	10			1	35	35
16	DSB001 SC	2	10.01	10			2		
17	06B001-01	4	10.02	10			3	35	35
18							4		
19							5	35	35
20							6		
21							Comments: Test thermometer = T ₁		
22									
23									
24									
25									
26									
27									

Preparation Batch: DSB001-S

Prepared By: JT/SS Standard Added By: JT
 Witnessed By: SS Checked By: ML
 Extract Received by: Q3 02 01 06 Extract Location: 5006-02
 Disposal Date: _____

This page is checked during data review.

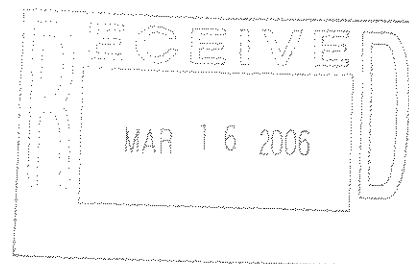
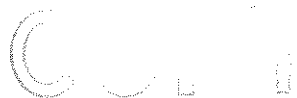


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PROJECT: CAMP PENDLETON, UST SITE 1441
SDG: 06A173A

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GC-SVOA METHOD 1312/3520C/8015B	5000 – 5028
HPLC **	6000 –
METALS **	7000 –
WET **	8000 –
OTHERS **	9000 –

** - Not Requested



LABORATORIES, INC.

1835 W. 205th Street
Torrance, CA 90501

Tel: (310) 618-8889

Fax: (310) 618-0818

Date: 02-15-2006

EMAX Batch No.: 06A173A

Attn: Nick Weinberger

SES-TECH

1940 E. Deere Avenue, Suite 200

Santa Ana CA 92705

Subject: Laboratory Report

Project: Camp Pendleton, UST Site 1441

Enclosed is the Laboratory report for samples received on 01/31/06.

The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
0003-069	A173-01	01/31/06	SOIL	TPH DIESEL SPLP VOLATILE ORGANICS SPLP SEMIVOLATILE ORGANICS SPLP
0003-074	A173-06	01/31/06	SOIL	TPH DIESEL SPLP VOLATILE ORGANICS SPLP SEMIVOLATILE ORGANICS SPLP
0003-077	A173-09	01/31/06	SOIL	TPH DIESEL SPLP VOLATILE ORGANICS SPLP SEMIVOLATILE ORGANICS SPLP

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

CHANGE ORDER FORM

SDG 06A173A TAT 72 Project Code SES0510
Requested by Richard B. Date Requested 2/7/06 Due Date 2/10/06

Analytical Requirements

AXO	EMAX Control Number	Sample Prep. Methods	Analytical Methods	Special Instructions
A	06A173-01	1312/3520C	8015B	SPLP Diesel
		1312/5030B	8260B	SPLP VOCs
		1312/3520C	8270SIM	SPLP PAHs
	- 06	1312/3520C	8015B	SPLP DIESEL
		1312/5030B	8260B	SPLP VOCs
		1312/3520C	8270SIM	SPLP PAHs
	- 09	1312/3520C	8015B	SPLP DIESEL
		1312/5030B	8260B	SPLP VOCs
		1312/3520C	8270SIM	SPLP PAHs

A-additional
X-cancelled
O-others (specify)

Quinn 2/8/06
(3) folders

1001

NUMBER 04974

CHAIN-OF-CUSTODY RECORD

06A173

PROJECT NAME Camp Pendleton		PURCHASE ORDER NO. TBD will call		ANALYSES REQUIRED										LABORATORY NAME EMAX				
PROJECT LOCATION UST Site 1441		PROJECT NO. 2973.0030		<div style="position: relative; height: 100px;"> <div style="position: absolute; top: 0; right: 0; transform: rotate(-45deg); font-size: 2em;">11/3/06</div> </div>										LABORATORY ID (FOR LABORATORY)				
SAMPLER NAME Wendy Bryant		SAMPLER SIGNATURE <i>[Signature]</i>												LABORATORY ID				
PROJECT CONTACT Nick Weinberger		AIRBILL NUMBER Carrier												LABORATORY ID				
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL	T	A	T	COMMENT										
				3	4													
1 0003-069	11/3/06	0801	2	X		S	48 hr	X										
2 0003-070	11/3/06	0905	2	X		S	48 hr	X										
3 0003-071	11/3/06	0908	2	X		S	48 hr	X										
4 0003-072	11/3/06	0911	2	X		S	48 hr	X										
5 0003-073	11/3/06	0915	2	X		S	48 hr	X										
6 0003-074	11/3/06	0920	2	X		S	48 hr	X										
7 0003-075	11/3/06	1032	2		X	S	48 hr	X										
8 0003-076	11/3/06	1038	2	X		S	48 hr	X										
9 0003-077	11/3/06	1046	6	X		S	48 hr	X	Includes MS/HS									
10 0003-078	11/3/06	1152	2	X		S	48 hr	X										
11 0003-079	11/3/06	1108	2	X		S	48 hr	X										
RELINQUISHED BY (Signature) <i>[Signature]</i>		DATE 11/3/06		RECEIVED BY (Signature) <i>[Signature]</i>		DATE 11/3/06		LABORATORY INSTRUCTIONS/COMMENTS * Hold samples for possible SPLP extraction										
COMPANY TECO		TIME 1350		COMPANY EMAX		TIME 1445		COMPOSITE DESCRIPTION										
RELINQUISHED BY (Signature) <i>[Signature]</i>		DATE 11/3/06		RECEIVED BY (Signature) <i>[Signature]</i>		DATE 11/3/06		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)										
COMPANY EMAX		TIME 1445		COMPANY EMAX		TIME 1445		TEMPERATURE 3.2 SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN										

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

Richard Beauvil

From: Nick Weinberger@tteci.com
Sent: Tuesday, February 07, 2006 2:54 PM
To: Richard Beauvil
Subject: Re: 06A173

Richard,
Please analyze SDG 06A173 sample numbers 0003-069, 0003-074, and 0003-077 for SPLP TPH-d, SPLP VOC's, and SPLP PAH's.
Let me know if you have any questions.

Nick

Nicholas Weinberger
Tetra Tech EC Inc.
Phone: (949)756-7588
Fax: (949)756-7583
E-mail: Nick.Weinberger@tteci.com

Richard Beauvil <RBeauvil@emaxlabs.com>

02/02/2006 05:23 PM

To: "Nick Weinberger (E-mail)" <nick.weinberger@tteci.com>
cc
Subject: 06A173

Hi Nick,

Please find the results attached.

Thank you.

Richard Beauvil
Project Manager

2/7/06

1835 205th Street
Torrance, CA 90501
Tel: 310/618-8889
Fax: 310/618-0818
Email: rbeauvil@emaxlabs.com
[attachment "a173_F8015e.PDF" deleted by Nicholas Weinberger/SCL/CSQ]

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

SES - TECH

CAMP PENDLETON, UST SITE 1441

SW 1312/5030B/8260B
SPLP VOLATILE ORGANICS BY GC/MS

SDG#: 06A173A

2000

CASE NARRATIVE

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 1441
SDG: 06A173A

SW 1312/5030B/8260B SPLP VOLATILE ORGANICS BY GC/MS

Three (3) soil samples were received on 01/31/06 for Volatile Organic analysis by Method 1312/5030B/8260B in accordance with USEPA SW846, 3rd ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blanks were free of contamination at half of the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit except Bromofluorobenzene in sample A173-09 was out of the limit due to matrix interference.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

LAB CHRONICLE
SPLP VOLATILE ORGANICS BY GC/MS

```

=====
Client      : SES-TECH
Project     : CAMP PENDLETON, UST SITE 1441
=====
SDG NO.    : 06A173A
Instrument ID : T-001
=====

```

		WATER									
Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes		
MBLK1W	V001B19Q	1	NA	02/09/0614:44	02/09/0614:44	RBV218	RAV257	V001B19	Method Blank		
LCS1W	V001B19L	1	NA	02/09/0612:49	02/09/0612:49	RBV215	RAV257	V001B19	Lab Control Sample (LCS)		
LCD1W	V001B19C	1	NA	02/09/0613:28	02/09/0613:28	RBV216	RAV257	V001B19	LCS Duplicate		
MBLK1S	SLB001SB	1	NA	02/09/0615:23	02/09/0615:23	RBV219	RAV257	V001B19	Method Blank		
0003-069	A173-01	1	NA	02/09/0616:39	02/09/0616:39	RBV221	RAV257	V001B19	Field Sample		
0003-074	A173-06	1	NA	02/09/0617:23	02/09/0617:23	RBV222	RAV257	V001B19	Field Sample		
0003-077	A173-09	1	NA	02/09/0618:01	02/09/0618:01	RBV223	RAV257	V001B19	Field Sample		

```

=====
FN      ~ Filename
% Moist ~ Percent Moisture
=====

```

SAMPLE RESULTS

SW 1312/5030B/8260B
SPLP VOLATILE ORGANICS BY GC/MS

```

=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 16:39
Sample ID   : 0003-069                     Date Analyzed: 02/09/06 16:39
Lab Samp ID : A173-01                      Dilution Factor: 1
Lab File ID : RBV221                      Matrix       : WATER
Ext Btch ID : V001B19                     % Moisture    : NA
Calib. Ref. : RAV257                      Instrument ID : T-001
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	1.2	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	94	65-135
TOLUENE-D8	102	75-125
BROMOFLUOROBENZENE	113	75-125

R.L. : Reporting limit
 * : Out of QC
 E : Exceeded calibration range
 B : Found in associated method blank
 J : Value between R.L. and MDL
 D : Value from dilution analysis
 D.O. : Diluted out
 SPLP Extraction Date: 02/08/06 17:15

SW 1312/5030B/8260B
SPLP VOLATILE ORGANICS BY GC/MS

```

=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 17:23
Sample ID   : 0003-074                     Date Analyzed: 02/09/06 17:23
Lab Samp ID : A173-06                       Dilution Factor: 1
Lab File ID : RBV222                        Matrix          : WATER
Ext Btch ID : V001B19                       % Moisture       : NA
Calib. Ref. : RAV257                        Instrument ID    : T-001
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	102	65-135
TOLUENE-D8	99	75-125
BROMOFLUOROBENZENE	108	75-125

R.L. : Reporting limit
 * : Out of QC
 E : Exceeded calibration range
 B : Found in associated method blank
 J : Value between R.L. and MDL
 D : Value from dilution analysis
 D.O. : Diluted out
 SPLP Extraction Date: 02/08/06 17:15

2005

SW 1312/5030B/8260B
SPLP VOLATILE ORGANICS BY GC/MS

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=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 18:01
Sample ID   : 0003-077                     Date Analyzed: 02/09/06 18:01
Lab Samp ID : A173-09                      Dilution Factor: 1
Lab File ID : RBV223                       Matrix          : WATER
Ext Btch ID : V001B19                      % Moisture      : NA
Calib. Ref. : RAV257                      Instrument ID   : T-001
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	102	65-135
TOLUENE-D8	100	75-125
BROMOFLUOROBENZENE	133*	75-125

R.L. : Reporting limit

* : Out of QC

E : Exceeded calibration range

B : Found in associated method blank

J : Value between R.L. and MDL

D : Value from dilution analysis

D.O. : Diluted out

SPLP Extraction Date: 02/08/06 17:15

2006

QC SUMMARIES

SW 1312/5030B/8260B
SPLP VOLATILE ORGANICS BY GC/MS

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=====
Client      : SES-TECH                      Date Collected: NA
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 02/09/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 14:44
Sample ID   : MBLK1W                       Date Analyzed: 02/09/06 14:44
Lab Samp ID : V001B19Q                     Dilution Factor: 1
Lab File ID : RBV218                       Matrix       : WATER
Ext Btch ID : V001B19                      % Moisture    : NA
Calib. Ref. : RAV257                       Instrument ID : T-001
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	99	65-135
TOLUENE-D8	103	75-125
BROMOFLUOROBENZENE	115	75-125

R.L. : Reporting limit
 * : Out of QC
 E : Exceeded calibration range
 B : Found in associated method blank
 J : Value between R.L. and MDL
 D : Value from dilution analysis
 D.O. : Diluted out

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 1441
BATCH NO.: 06A173A
METHOD: SW 1312/5030B/8260B

MATRIX: WATER
DILUTION FACTOR: 1 1 1 % MOISTURE: NA
SAMPLE ID: MBLK1W
LAB SAMP ID: V001B19Q V001B19L V001B19C
LAB FILE ID: RBV218 RBV215 RBV216
DATE EXTRACTED: 02/09/0614:44 02/09/0612:49 02/09/0613:28 DATE COLLECTED: NA
DATE ANALYZED: 02/09/0614:44 02/09/0612:49 02/09/0613:28 DATE RECEIVED: 02/09/06
PREP. BATCH: V001B19 V001B19 V001B19
CALIB. REF: RAV257 RAV257 RAV257

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1-Dichloroethene	ND	10	10.1	101	10	9.91	99	2	75-125	20
Benzene	ND	10	9.74	97	10	9.79	98	1	75-125	20
Chlorobenzene	ND	10	10.3	103	10	10.3	103	0	75-125	20
Toluene	ND	10	9.59	96	10	9.63	96	0	75-125	20
Trichloroethene	ND	10	11	110	10	11.1	111	1	75-125	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10	9.2	92	10	9.21	92	65-135
Toluene-d8	10	10.3	103	10	10.5	105	75-125
Bromofluorobenzene	10	10.9	109	10	10.9	109	75-125

SW 1312/5030B/8260B
SPLP VOLATILE ORGANICS BY GC/MS

```

=====
Client      : SES-TECH                      Date Collected: NA
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 02/09/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 15:23
Sample ID   : MBLK1S                       Date Analyzed: 02/09/06 15:23
Lab Samp ID : SLB001SB                     Dilution Factor: 1
Lab File ID : RBV219                       Matrix          : WATER
Ext Btch ID : V001B19                     % Moisture      : NA
Calib. Ref. : RAV257                     Instrument ID   : T-001
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	.2
1,1,2,2-TETRACHLOROETHANE	ND	1	.2
1,1,2-TRICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHANE	ND	5	.2
1,1-DICHLOROETHENE	ND	5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	5	.2
METHYL ETHYL KETONE	ND	50	.2
2-HEXANONE	ND	50	5
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	.5	.2
BROMODICHLOROMETHANE	ND	5	.2
BROMOFORM	ND	5	.3
BROMOMETHANE	ND	5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	5	.2
CHLOROETHANE	ND	5	.2
CHLOROFORM	ND	5	.2
CHLOROMETHANE	ND	5	.2
CIS-1,2-DICHLOROETHENE	ND	5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	5	.2
ETHYLBENZENE	ND	.5	.2
XYLENES	ND	5	.2
MTBE	ND	1	.2
METHYLENE CHLORIDE	ND	5	.5
STYRENE	ND	5	.2
TETRACHLOROETHYLENE	ND	5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	5	.2
VINYL ACETATE	ND	50	.5
VINYL CHLORIDE	ND	.5	.2
TERT-BUTYL ALCOHOL	ND	20	5
DIISOPROPYL ETHER	ND	5	.2
ETHYL TERT-BUTYL ETHER	ND	5	.2
TERT-AMYL METHYL ETHER	ND	5	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	96	65-135
TOLUENE-D8	104	75-125
BROMOFLUOROBENZENE	118	75-125

R.L. : Reporting limit
 * : Out of QC
 E : Exceeded calibration range
 B : Found in associated method blank
 J : Value between R.L. and MDL
 D : Value from dilution analysis
 D.O. : Diluted out
 SPLP Extraction Date: 02/08/06 17:15

2010

INITIAL CALIBRATION

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc Contract: CAMP PENDLETON, UST SITE 1441
Lab Code: EMXT Case No.: SAS No.: SDG No.: 06A173A
Lab File ID: RAV251 BFB Injection Date : 01/25/06
Instrument ID: T-001 BFB Injection Time : 12:10
GC Column:RTX502.2ID:0.32mm (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.96
75	30.0 - 60.0% of mass 95	35.63
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.70
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	82.05
175	5.0 - 9.0% of mass 174	5.27(6.4)1
176	95.0 - 101.0% of mass 174	78.29(95.4)1
177	5.0 - 9.0% of mass 176	4.82(6.2)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD,BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD0.3	VO01A2501	RAV252	01/25/06	12:51
2	VSTD0.5	VO01A2502	RAV253	01/25/06	13:29
3	VSTD01	VO01A2503	RAV254	01/25/06	14:07
4	VSTD02	VO01A2504	RAV255	01/25/06	14:45
5	VSTD05	VO01A2505	RAV256	01/25/06	15:23
6	VSTD010	VO01A2506	RAV257	01/25/06	16:25
7	VSTD020	VO01A2507	RAV258	01/25/06	17:03
8	VSTD030	VO01A2508	RAV259	01/25/06	17:41
9	VSTD040	VO01A2509	RAV260	01/25/06	18:19
10	VSTD050	VO01A2510	RAV262	01/25/06	19:33
11	VSTD010	IV001A2501	RAV265	01/25/06	21:27

INITIAL CALIBRATION - RELATIVE RESPONSE FACTOR

Instrument ID : T001
Beginning Date/Time : 01/25/06 12:51
Spike Units : PPB
IC File : RAV257

Column Spec : RTX502.2 ID : 0.3
Ending DateTime : 01/25/06 19:
HPChem Method : V001A25

M	IDX	Parameters	12-57 RAV252	13-26 RAV253	14-07 RAV254	14-47 RAV255	15-23 RAV256	16-10 RAV257	17-09 RAV258	17-39 RAV259	18-49 RAV260	19-34 RAV262	AV RRF	% RSD	AV Rt
	1	4-DIFLUOROBENZENE	0.313	0.332	0.353	0.395	0.385	0.390	0.387	0.372	0.361	0.355	0.374	1.7	11.2
	2	Dichlorodifluoromethane	0.387	0.357	0.327	0.297	0.280	0.282	0.292	0.297	0.290	0.283	0.286	1.7	11.2
	3	Chloromethane	0.241	0.267	0.325	0.369	0.372	0.372	0.372	0.372	0.372	0.372	0.372	1.7	11.2
	4	Vinyl chloride	0.241	0.267	0.325	0.369	0.372	0.372	0.372	0.372	0.372	0.372	0.372	1.7	11.2
	5	Bromomethane	0.241	0.267	0.325	0.369	0.372	0.372	0.372	0.372	0.372	0.372	0.372	1.7	11.2
	6	Chloroethane	0.357	0.404	0.401	0.429	0.429	0.429	0.429	0.429	0.429	0.429	0.429	1.7	11.2
	7	Trichlorofluoromethane	0.357	0.404	0.401	0.429	0.429	0.429	0.429	0.429	0.429	0.429	0.429	1.7	11.2
	8	sec-Propyl alcohol	0.203	0.243	0.018	0.025	0.023	0.019	0.020	0.020	0.024	0.023	0.023	1.7	11.2
	9	Acrolein	0.203	0.243	0.018	0.025	0.023	0.019	0.020	0.020	0.024	0.023	0.023	1.7	11.2
	10	1,1,2-Trichloro-1,2,2-trifluoroethane	0.203	0.243	0.018	0.025	0.023	0.019	0.020	0.020	0.024	0.023	0.023	1.7	11.2
	11	Acetone	0.495	0.545	0.568	0.595	0.595	0.595	0.595	0.595	0.595	0.595	0.595	1.7	11.2
	12	1,1-Dichloroethene	0.495	0.545	0.568	0.595	0.595	0.595	0.595	0.595	0.595	0.595	0.595	1.7	11.2
	13	tert-Butyl alcohol	0.495	0.545	0.568	0.595	0.595	0.595	0.595	0.595	0.595	0.595	0.595	1.7	11.2
	14	Acetonitrile	0.495	0.545	0.568	0.595	0.595	0.595	0.595	0.595	0.595	0.595	0.595	1.7	11.2
	15	Iodomethane	0.241	0.274	0.293	0.297	0.282	0.377	0.392	0.400	0.386	0.386	0.386	1.7	11.2
	16	Methylene chloride	0.241	0.274	0.293	0.297	0.282	0.377	0.392	0.400	0.386	0.386	0.386	1.7	11.2
	17	Carbon disulfide	1.065	1.166	1.215	1.226	1.226	1.226	1.226	1.226	1.226	1.226	1.226	1.7	11.2
	18	Acrylonitrile	0.029	0.039	0.046	0.050	0.046	0.046	0.046	0.046	0.046	0.046	0.046	1.7	11.2
	19	tert-Butyl methyl ether (MTBE)	0.274	0.302	0.314	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	1.7	11.2
	20	trans-1,2-Dichloroethene	0.437	0.500	0.514	0.553	0.553	0.553	0.553	0.553	0.553	0.553	0.553	1.7	11.2
	21	Isopropyl ether (DIPE)	0.858	0.996	1.051	1.127	1.044	0.947	0.926	0.926	0.926	0.926	0.926	1.7	11.2
	22	Vinyl acetate	0.187	0.196	0.228	0.262	0.262	0.262	0.262	0.262	0.262	0.262	0.262	1.7	11.2
	23	1,1-Dichloroethane	0.547	0.587	0.634	0.673	0.673	0.673	0.673	0.673	0.673	0.673	0.673	1.7	11.2
	24	tert-Butyl ethyl ether (ETBE)	0.410	0.521	0.531	0.592	0.592	0.592	0.592	0.592	0.592	0.592	0.592	1.7	11.2
	25	2-Butanone	0.299	0.337	0.337	0.358	0.337	0.337	0.337	0.337	0.337	0.337	0.337	1.7	11.2
	26	2,2-Dichloropropane	0.448	0.537	0.563	0.584	0.541	0.533	0.545	0.523	0.501	0.469	0.500	1.7	11.2
	27	cis-1,2-Dichloroethene	0.448	0.537	0.563	0.584	0.541	0.533	0.545	0.523	0.501	0.469	0.500	1.7	11.2
	28	tert-Butyl formate (TBF)	0.439	0.496	0.526	0.551	0.512	0.508	0.526	0.504	0.484	0.461	0.461	1.7	11.2
	29	Chloroform	0.230	0.267	0.275	0.297	0.281	0.278	0.292	0.268	0.248	0.232	0.232	1.7	11.2
	30	Bromochloromethane	0.230	0.267	0.275	0.297	0.281	0.278	0.292	0.268	0.248	0.232	0.232	1.7	11.2
	31	Tetrahydrofuran	0.385	0.444	0.460	0.476	0.452	0.439	0.459	0.436	0.416	0.393	0.393	1.7	11.2
	32	1,1-Trichloroethane	0.385	0.444	0.460	0.476	0.452	0.439	0.459	0.436	0.416	0.393	0.393	1.7	11.2
	33	tert-Amyl methyl ether (TAME)	0.220	0.339	0.350	0.360	0.389	0.389	0.389	0.389	0.389	0.389	0.389	1.7	11.2
	34	2-Dichloroethane-d4	0.220	0.339	0.350	0.360	0.389	0.389	0.389	0.389	0.389	0.389	0.389	1.7	11.2
	35	CHLORO BENZENE-D5	0.150	0.161	0.162	0.164	0.164	0.164	0.164	0.164	0.164	0.164	0.164	1.7	11.2
	36	1,1-Dichloropropene	0.150	0.161	0.162	0.164	0.164	0.164	0.164	0.164	0.164	0.164	0.164	1.7	11.2
	37	Carbon tetrachloride	0.329	0.329	0.329	0.329	0.329	0.329	0.329	0.329	0.329	0.329	0.329	1.7	11.2
	38	1,2-Dichloroethane	0.227	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	1.7	11.2
	39	Benzene	0.227	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	1.7	11.2
	40	1,1-Dichloropropane	0.227	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	1.7	11.2
	41	1,2-Dichloropropane	0.227	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	1.7	11.2
	42	Bromodichloromethane	0.227	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	1.7	11.2
	43	Dibromomethane	0.227	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	1.7	11.2
	44	3-Methyl-2-pentanone	0.227	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	1.7	11.2
	45	2-Chloroethyl vinyl ether	0.227	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	1.7	11.2
	46	cis-1,3-Dichloropropene	0.227	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	0.274	1.7	11.2
	47	Toluene-d8	0.358	0.415	0.450	0.468	0.468	0.468	0.468	0.468	0.468	0.468	0.468	1.7	11.2
	48	Toluene	0.358	0.415	0.450	0.468	0.468	0.468	0.468	0.468	0.468	0.468	0.468	1.7	11.2
	49	Ethyl methacrylate	0.180	0.205	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	1.7	11.2
	50	Trans-1,3-Dichloropropene	0.180	0.205	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	1.7	11.2
	51	1,1,2-Trichloroethane	0.180	0.205	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	1.7	11.2
	52	2-Hexanone	0.283	0.340	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	1.7	11.2
	53	3-Dichloropropane	0.283	0.340	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	1.7	11.2
	54	Tetrachloroethene	0.283	0.340	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	1.7	11.2
	55	Dibromochloromethane	0.283	0.340	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	1.7	11.2
	56	Dibromomethane	0.283	0.340	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	1.7	11.2
	57	1,2-Dibromoethane	0.283	0.340	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	1.7	11.2
	58	1-Chlorohexane	0.283	0.340	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	1.7	11.2
	59	Chlorobenzene	0.283	0.340	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	1.7	11.2
	60	1,1,1,2-Tetrachloroethane	0.283	0.340	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	1.7	11.2
	61	Ethyl benzene	0.283	0.340	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	1.7	11.2
	62	m-Xylene & p-Xylene	0.283	0.340	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	1.7	11.2
	63	o-Xylene	0.283	0.340	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	1.7	11.2
	64	Styrene	0.283	0.340	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	0.352	1.7	11.2
	65	1,2-DICHLORO BENZENE-D4	4.094	4.516	4.924	4.963	4.963	4.963	4.963	4.963	4.963	4.963	4.963	1.7	11.2
	66	Isopropylbenzene	0.327	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	1.7	11.2
	67	Bromofluoromethane	0.327	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	1.7	11.2
	68	1,1,2,2-Tetrachloroethane	0.327	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	1.7	11.2
	69	4-Bromofluorobenzene	0.327	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	1.7	11.2
	70	1,2,3-Trichloropropane	0.327	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	1.7	11.2
	71	trans-1,4-Dichloro-2-butene	0.327	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356	1.7	11.2
	72	n-Propylbenzene	5.533	5.861	6.438	6.438	6.438	6.438	6.438	6.438	6.438	6.438	6.438	1.7	11.2
	73	Bromobenzene	0.847	0.973	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.082	1.7	11.2
	74	3,5-Trimethylbenzene	0.927	1.053	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.7	11.2
	75	2-Chlorotoluene	0.927	1.053	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.7	11.2
	76	4-Chlorotoluene	0.927	1.053	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.7	11.2
	77	tert-Butylbenzene	0.927	1.053	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.7	11.2
	78	2,4,6-Trimethylbenzene	0.927	1.053	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.7	11.2
	79	sec-Butylbenzene	0.927	1.053	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.162	1.7	11.2
	8														

~~Spike Amount = Nominal Amount * M~~
Ave %RSD : 10.1 Max %RSD : 32.2

Use Least Square Linear Regression with weighting factor of inverse concentration for comps with %_RSD > 15
Resp Ratio = $x_0 + x_1 * \text{Amt Ratio}$

IDX	Parameter	x0	x1	CCF
1	Acetone	0.007710	0.031570	0.9997
2	Iodomethane	-0.013472	0.015720	0.9926
3	Methylene chloride	-0.017508	0.013720	0.9920
4	Tetrahydrofuran	-0.008666	0.036460	0.9947
5	2-Chloroethyl vinyl ether	-0.000110	0.003630	0.9970
6	Thiyl methacrylate	-0.008776	0.026930	0.9974
7	trans-1,3-Dichloropropene	-0.003847	0.038560	0.9926
8	2-Hexanone	-0.023011	0.119550	0.9993
9	trans-1,4-Dichloro-2-butene	-0.004655	0.089510	0.9927
10	1,2,4-Trichlorobenzene	-0.040002	0.853230	0.9973
11	Hexachlorobutadiene	-0.018006	0.078206	0.9955
12	Naphthalene	-0.062109	0.778253	0.9953
13	1,2,3-Trichlorobenzene	-0.029711	0.670520	0.9976

1-27-06

2013

SECOND SOURCE VERIFICATION

2014

Evaluate Continuing Calibration Report

Data File : E:\HPCHEM\1\DATA\06A25\RAV265.D
 Acq On : 25 Jan 2006 9:27 pm
 Sample : IVO01A2501 10/20/50ppb
 Misc : 10ppb8260/20KET,AA,THF/50TBA
 MS Integration Params: 524INT.P

Vial: 15
 Operator: AS
 Inst : T001
 Multiplr: 1.00

Method : E:\HPCHEM\1\METHODS\VO01A25.M (RTE Integrator)
 Title : METHOD 8260 25mls
 Last Update : Thu Jan 26 10:09:44 2006
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 I	1,4-DIFLUOROBENZENE	10.000	10.000	0	109	0.00
2 T	Dichlorodifluoromethane	10.000	9.540	5	97	0.00
3 P,T	Chloromethane	10.000	9.999	0	102	0.00
4 C,T	Vinyl chloride	10.000	10.810	-8	106	0.00
5 T	Bromomethane	10.000	11.176	-12	132	0.00
6 T	Chloroethane	10.000	9.145	9	96	0.00
7 T	Trichlorofluoromethane	10.000	10.815	-8	108	0.00
8 T	sec-Propyl alcohol	-1.000	0.000	0	0	0.00
9 T	Acrolein	20.000	20.368	-2	125	0.00
10 T	1,1,2-Trichloro-1,2,2-trifl	10.000	10.282	-3	117	0.00
11 T	Acetone	20.000	20.931	-5	113	0.00
12 C,T	1,1-Dichloroethene	10.000	9.474	5	102	0.00
13 T	tert-Butyl alcohol	50.000	42.508	15	88	0.00
14 T	Acetonitrile	-1.000	0.000	0	0	0.00
15 T	Iodomethane	10.000	10.396	-4	150	0.00
16 T	Methylene chloride	10.000	9.371	6	97	0.00
17 T	Carbon disulfide	10.000	10.491	-5	115	0.00
18 T	Acrylonitrile	20.000	18.282	9	95	0.00
19 T	tert-Butyl methyl ether (MT	10.000	9.838	2	101	0.00
20 T	trans-1,2-Dichloroethene	10.000	9.741	3	105	0.00
21 T	Isopropyl ether (DIPE)	10.000	9.707	3	102	0.00
22 T	Vinyl acetate	10.000	8.914	11	87	0.00
23 P,T	1,1-Dichloroethane	10.000	9.794	2	106	0.00
24 T	tert-Butyl ethyl ether (ETB	10.000	10.230	-2	105	0.00
25 T	2-Butanone	20.000	17.223	14	87	0.00
26 T	2,2-Dichloropropane	10.000	9.877	1	107	0.00
27 T	cis-1,2-Dichloroethene	10.000	9.669	3	104	0.00
28 T	tert-Butyl formate (TBF)	-1.000	0.000	0	0	0.00
29 C,T	Chloroform	10.000	10.090	-1	108	0.00
30 T	Bromochloromethane	10.000	9.290	7	97	0.00
31 T	Tetrahydrofuran	20.000	17.550	12	102	0.01
32 T	1,1,1-Trichloroethane	10.000	9.815	2	107	0.00
33 T	tert-Amyl methyl ether (TAM	10.000	9.851	1	102	0.00
34 S	1,2-Dichloroethane-d4	10.000	9.532	5	102	0.00
35 I	CHLOROBENZENE-D5	10.000	10.000	0	105	0.00
36 T	1,1-Dichloropropene	10.000	10.057	-1	104	0.00
37 T	Carbon tetrachloride	10.000	10.569	-6	110	0.00
38 T	1,2-Dichloroethane	10.000	9.691	3	101	0.00
39 T	Benzene	10.000	9.914	1	106	0.00
40 T	Trichloroethene	10.000	10.757	-8	112	0.00

(#) = Out of Range

RAV265.D VO01A25.M

Thu Jan 26 10:48:09 2006

1-21-06

2015 Page 1

Evaluate Continuing Calibration Report

Data File : E:\HPCHEM\1\DATA\06A25\RAV265.D
 Acq On : 25 Jan 2006 9:27 pm
 Sample : IVO01A2501 10/20/50ppb
 Misc : 10ppb8260/20KET,AA,THF/50TBA
 MS Integration Params: 524INT.P

Vial: 15
 Operator: AS
 Inst : T001
 Multiplr: 1.00

Method : E:\HPCHEM\1\METHODS\VO01A25.M (RTE Integrator)
 Title : METHOD 8260 25mls
 Last Update : Thu Jan 26 10:09:44 2006
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
41 C,T	1,2-Dichloropropane	10.000	9.866	1	99	0.00
42 T	Bromodichloromethane	10.000	9.752	2	98	0.00
43 T	Dibromomethane	10.000	10.151	-2	103	0.00
44 T	4-Methyl-2-pentanone	20.000	18.806	6	95	0.01
45 T	2-Chloroethyl vinyl ether	10.000	9.747	3	80	0.00
46 T	cis-1,3-Dichloropropene	10.000	10.112	-1	99	0.00
47 S	Toluene-d8	10.000	10.523	-5	107	0.00
48 C,T	Toluene	10.000	9.759	2	107	0.00
49 T	Ethyl methacrylate	10.000	8.910	11	91	0.00
50 T	trans-1,3-Dichloropropene	10.000	10.095	-1	104	0.00
51 T	1,1,2-Trichloroethane	10.000	9.908	1	101	0.00
52 T	2-Hexanone	20.000	18.111	9	96	0.00
53 T	1,3-Dichloropropane	10.000	9.893	1	97	0.00
54 T	Tetrachloroethene	10.000	10.522	-5	109	0.00
55 T	Dibromochloromethane	10.000	10.443	-4	102	0.00
56 T	1,2-Dibromoethane	10.000	10.105	-1	100	0.00
57 T	1-Chlorohexane	10.000	10.247	-2	102	0.00
58 P	Chlorobenzene	10.000	10.301	-3	107	0.00
59 T	1,1,1,2-Tetrachloroethane	10.000	10.332	-3	106	0.00
60 C,T	Ethylbenzene	10.000	10.031	-0	103	0.00
61 T	m-Xylene & p-Xylene	20.000	19.885	1	104	0.00
62 T	o-Xylene	10.000	9.865	1	100	0.00
63 T	Styrene	10.000	10.032	-0	100	0.00
64 I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0	102	0.00
65 T	Isopropylbenzene	10.000	11.390	-14	116	0.00
66 P,T	Bromoform	10.000	10.074	-1	96	0.00
67 P,T	1,1,2,2-Tetrachloroethane	10.000	9.362	6	93	0.00
68 S	4-Bromofluorobenzene	10.000	10.383	-4	103	0.00
69 T	1,2,3-Trichloropropane	10.000	7.829	22#	77	0.00
70 T	trans-1,4-Dichloro-2-butene	10.000	12.362	-24#	128	0.00
71 T	n-Propylbenzene	10.000	10.141	-1	101	0.00
72 T	Bromobenzene	10.000	10.427	-4	106	0.00
73 T	1,3,5-Trimethylbenzene	10.000	10.455	-5	103	0.00
74 T	2-Chlorotoluene	10.000	9.968	0	108	0.00
75 T	4-Chlorotoluene	10.000	9.402	6	93	0.00
76 T	tert-Butylbenzene	10.000	10.334	-3	104	0.00
77 T	1,2,4-Trimethylbenzene	10.000	10.268	-3	101	0.00
78 T	sec-Butylbenzene	10.000	9.810	2	97	0.00
79 T	p-Isopropyltoluene	10.000	11.279	-13	108	0.00
80 T	1,3-Dichlorobenzene	10.000	10.291	-3	106	0.00

(#) = Out of Range

RAV265.D VO01A25.M

Thu Jan 26 10:48:10 2006

2016 Page 2

Evaluate Continuing Calibration Report

Data File : E:\HPCHEM\1\DATA\06A25\RAV265.D
 Acq On : 25 Jan 2006 9:27 pm
 Sample : IVO01A2501 10/20/50ppb
 Misc : 10ppb8260/20KET,AA,THF/50TBA
 MS Integration Params: 524INT.P

Vial: 15
 Operator: AS
 Inst : TO01
 Multiplr: 1.00

Method : E:\HPCHEM\1\METHODS\VO01A25.M (RTE Integrator)
 Title : METHOD 8260 25mls
 Last Update : Thu Jan 26 10:09:44 2006
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81 T	1,4-Dichlorobenzene	10.000	10.017	-0	104	0.00
82 T	n-Butylbenzene	10.000	10.506	-5	100	0.00
83 T	1,2-Dichlorobenzene	10.000	10.214	-2	105	0.00
84 T	1,2-Dibromo-3-chloropropane	10.000	9.301	7	100	0.00
85 T	1,2,4-Trichlorobenzene	10.000	8.928	11	107	0.01
86 T	Hexachlorobutadiene	10.000	9.502	5	104	0.00
87 T	Naphthalene	10.000	8.786	12	107	0.00
88 T	1,2,3-Trichlorobenzene	10.000	8.841	12	105	0.00

400
1-27-06

DAILY CALIBRATION

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc Contract: CAMP PENDLETON, UST SITE 1441
Lab Code: EMXT Case No.: SAS No.: SDG No.: 06A173A
Lab File ID: RBV212 BFB Injection Date : 02/09/06
Instrument ID: T-001 BFB Injection Time : 10:54
GC Column: RTX502.2ID:0.32mm (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.01
75	30.0 - 60.0% of mass 95	37.02
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.45
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	86.77
175	5.0 - 9.0% of mass 174	6.25(7.2)1
176	95.0 - 101.0% of mass 174	83.52(96.2)1
177	5.0 - 9.0% of mass 176	5.13(6.1)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1 VSTD010	CV001A2538	RBV214	02/09/06	12:11
2 MBLK1W	VO01B19Q	RBV218	02/09/06	14:44
3 LCS1W	VO01B19L	RBV215	02/09/06	12:49
4 LCD1W	VO01B19C	RBV216	02/09/06	13:28
5 MBLK1S	SLB001SB	RBV219	02/09/06	15:23
6 0003-069	A173-01	RBV221	02/09/06	16:39
7 0003-074	A173-06	RBV222	02/09/06	17:23
8 0003-077	A173-09	RBV223	02/09/06	18:01

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMAX Inc
Lab Code: EMXT
Lab File ID: RAV257
Instrument ID: T-001
GC Column: RTX502.2

Project: CAMP PENDLETON, UST SITE 1441
SDG No.: 06A173A
Date Analyzed: 01/25/06
Time Analyzed: 16:25
Heated Purge: (Y/N) N

ID: 0.32mm (mm)

	IS1(DBF)		IS2(CBZ)		IS3(DCB)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	2572941	11.21	2299080	16.44	841360	22.05
UPPER LIMIT	5145882	11.71	4598160	16.94	1682720	22.55
LOWER LIMIT	1286471	10.71	1149540	15.94	420680	21.55
SAMPLE ID						
1 VSTD010	2141327	11.24	1827427	16.47	596480	22.08
2 MBLK1W	2585179	11.24	2123830	16.47	618436	22.08
3 LCS1W	2346738	11.22	2020774	16.47	652053	22.08
4 LCD1W	2440707	11.23	2018919	16.47	659727	22.08
5 MBLK1S	2520651	11.24	2057280	16.49	578475	22.08
6 0003-069	2654153	11.24	2143835	16.48	700535	22.08
7 0003-074	2466485	11.24	2107907	16.48	696549	22.08
8 0003-077	2496301	11.24	2024352	16.47	592118	22.08

IS1 (DFB) = 1,4-Difluorobenzene

IS2 (CBZ) = Chlorobenzene-d5

IS3 (DCB) = 1,2-Dichlorobenzene-d4

AREA UPPER LIMIT = + 100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

AREA UPPER LIMIT = + 50% of surrogate area

AREA LOWER LIMIT = - 50% of surrogate area

Column used to flag internal standard area values with an asterisk

* Values outside of QC limits.

Evaluate Continuing Calibration Report

Data File : E:\HPCHEM\1\DATA\06B09\RBV214.D
 Acq On : 9 Feb 2006 12:11 pm
 Sample : CVO01A2538 10/20/50ppb
 Misc : 10ppb8260/20ppbKET-AA/50ppbTBA
 MS Integration Params: 524INT.P

Vial: 3
 Operator: AS
 Inst : T001
 Multiplr: 1.00

Method : E:\HPCHEM\1\METHODS\VO01A25.M (RTE Integrator)
 Title : METHOD 8260 25mls
 Last Update : Thu Jan 26 10:09:44 2006
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 I	1,4-DIFLUOROBENZENE	10.000	10.000	0	83	0.03
2 T	Dichlorodifluoromethane	10.000	9.514	5	74	0.03
3 P,T	Chloromethane	10.000	9.893	1	77	0.01
4 C,T	Vinyl chloride	10.000	11.654	-17	87	0.03
5 T	Bromomethane	10.000	12.268	-23#	110	0.01
6 T	Chloroethane	10.000	10.372	-4	83	0.03
7 T	Trichlorofluoromethane	10.000	11.237	-12	85	0.03
8 T	sec-Propyl alcohol	-1.000	0.000	0	0	0.03
9 T	Acrolein	20.000	17.111	14	80	0.03
10 T	1,1,2-Trichloro-1,2,2-trifl	10.000	10.716	-7	93	0.03
11 T	Acetone	20.000	19.378	3	80	0.03
12 C,T	1,1-Dichloroethene	10.000	11.192	-12	92	0.03
13 T	tert-Butyl alcohol	50.000	43.997	12	70	0.03
14 T	Acetonitrile	-1.000	0.000	0	0	0.04
15 T	Iodomethane	10.000	10.969	-10	121	0.03
16 T	Methylene chloride	10.000	9.755	2	77	0.01
17 T	Carbon disulfide	10.000	9.343	7	78	0.03
18 T	Acrylonitrile	20.000	20.264	-1	80	0.03
19 T	tert-Butyl methyl ether (MT	10.000	10.619	-6	83	0.01
20 T	trans-1,2-Dichloroethene	10.000	10.307	-3	84	0.03
21 T	Isopropyl ether (DIPE)	10.000	10.111	-1	81	0.03
22 T	Vinyl acetate	10.000	10.860	-9	81	0.01
23 P,T	1,1-Dichloroethane	10.000	10.556	-6	87	0.03
24 T	tert-Butyl ethyl ether (ETB	10.000	10.969	-10	86	0.03
25 T	2-Butanone	20.000	19.488	3	75	0.03
26 T	2,2-Dichloropropane	10.000	11.989	-20	99	0.03
27 T	cis-1,2-Dichloroethene	10.000	10.541	-5	86	0.01
28 T	tert-Butyl formate (TBF)	-1.000	0.000	0	0	0.03
29 C,T	Chloroform	10.000	10.543	-5	86	0.03
30 T	Bromochloromethane	10.000	9.534	5	76	0.03
31 T	Tetrahydrofuran	20.000	-0.404	102#	8	0.07
32 T	1,1,1-Trichloroethane	10.000	11.173	-12	93	0.03
33 T	tert-Amyl methyl ether (TAM	10.000	10.936	-9	87	0.03
34 S	1,2-Dichloroethane-d4	10.000	9.330	7	76	0.03
35 I	CHLOROBENZENE-D5	10.000	10.000	0	79	0.03
36 T	1,1-Dichloropropene	10.000	11.167	-12	87	0.01
37 T	Carbon tetrachloride	10.000	11.906	-19	94	0.01
38 T	1,2-Dichloroethane	10.000	10.197	-2	80	0.01
39 T	Benzene	10.000	10.539	-5	85	0.03
40 T	Trichloroethene	10.000	11.470	-15	90	0.03

(#) = Out of Range

RBV214.D VO01A25.M

Thu Feb 09 15:15:04 2006

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Evaluate Continuing Calibration Report

Data File : E:\HPCHEM\1\DATA\06B09\RBV214.D
 Acq On : 9 Feb 2006 12:11 pm
 Sample : CVO01A2538 10/20/50ppb
 Misc : 10ppb8260/20ppbKET-AA/50ppbTBA
 MS Integration Params: 524INT.P

Vial: 3
 Operator: AS
 Inst : T001
 Multiplr: 1.00

Method : E:\HPCHEM\1\METHODS\VO01A25.M (RTE Integrator)
 Title : METHOD 8260 25mls
 Last Update : Thu Jan 26 10:09:44 2006
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
41 C,T	1,2-Dichloropropane	10.000	10.888	-9	83	0.03
42 T	Bromodichloromethane	10.000	11.193	-12	85	0.01
43 T	Dibromomethane	10.000	10.247	-2	78	0.03
44 T	4-Methyl-2-pentanone	20.000	19.776	1	75	0.03
45 T	2-Chloroethyl vinyl ether	10.000	12.932	-29#	88	0.04
46 T	cis-1,3-Dichloropropene	10.000	11.022	-10	82	0.03
47 S	Toluene-d8	10.000	10.351	-4	80	0.01
48 C,T	Toluene	10.000	10.358	-4	86	0.03
49 T	Ethyl methacrylate	10.000	9.193	8	71	0.01
50 T	trans-1,3-Dichloropropene	10.000	10.021	-0	78	0.01
51 T	1,1,2-Trichloroethane	10.000	10.416	-4	80	0.03
52 T	2-Hexanone	20.000	18.451	8	74	0.01
53 T	1,3-Dichloropropane	10.000	10.162	-2	75	0.03
54 T	Tetrachloroethene	10.000	11.172	-12	87	0.03
55 T	Dibromochloromethane	10.000	10.746	-7	79	0.03
56 T	1,2-Dibromoethane	10.000	10.333	-3	77	0.03
57 T	1-Chlorohexane	10.000	11.290	-13	85	0.03
58 P	Chlorobenzene	10.000	11.085	-11	87	0.03
59 T	1,1,1,2-Tetrachloroethane	10.000	11.217	-12	87	0.01
60 C,T	Ethylbenzene	10.000	10.739	-7	83	0.03
61 T	m-Xylene & p-Xylene	20.000	21.142	-6	83	0.03
62 T	o-Xylene	10.000	10.498	-5	81	0.03
63 T	Styrene	10.000	10.964	-10	82	0.03
64 I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0	71	0.03
65 T	Isopropylbenzene	10.000	12.216	-22#	87	0.03
66 P,T	Bromoform	10.000	11.558	-16	77	0.03
67 P,T	1,1,2,2-Tetrachloroethane	10.000	10.392	-4	72	0.03
68 S	4-Bromofluorobenzene	10.000	10.969	-10	76	0.01
69 T	1,2,3-Trichloropropane	10.000	9.869	1	68	0.03
70 T	trans-1,4-Dichloro-2-butene	10.000	9.196	8	65	0.03
71 T	n-Propylbenzene	10.000	11.493	-15	80	0.03
72 T	Bromobenzene	10.000	11.724	-17	83	0.03
73 T	1,3,5-Trimethylbenzene	10.000	10.896	-9	75	0.03
74 T	2-Chlorotoluene	10.000	10.804	-8	82	0.03
75 T	4-Chlorotoluene	10.000	11.270	-13	78	0.03
76 T	tert-Butylbenzene	10.000	11.755	-18	82	0.03
77 T	1,2,4-Trimethylbenzene	10.000	10.520	-5	72	0.03
78 T	sec-Butylbenzene	10.000	11.682	-17	81	0.01
79 T	p-Isopropyltoluene	10.000	11.571	-16	77	0.03
80 T	1,3-Dichlorobenzene	10.000	11.240	-12	80	0.03

(#) = Out of Range

RBV214.D VO01A25.M

Thu Feb 09 15:15:05 2006

2022

Page 2

Evaluate Continuing Calibration Report

Data File : E:\HPCHEM\1\DATA\06B09\RBV214.D
 Acq On : 9 Feb 2006 12:11 pm
 Sample : CVO01A2538 10/20/50ppb
 Misc : 10ppb8260/20ppbKET-AA/50ppbTBA
 MS Integration Params: 524INT.P

Vial: 3
 Operator: AS
 Inst : T001
 Multiplr: 1.00

Method : E:\HPCHEM\1\METHODS\VO01A25.M (RTE Integrator)
 Title : METHOD 8260 25mls
 Last Update : Thu Jan 26 10:09:44 2006
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81 T	1,4-Dichlorobenzene	10.000	10.948	-9	79	0.03
82 T	n-Butylbenzene	10.000	10.920	-9	72	0.01
83 T	1,2-Dichlorobenzene	10.000	10.791	-8	77	0.03
84 T	1,2-Dibromo-3-chloropropane	10.000	9.392	6	70	0.01
85 T	1,2,4-Trichlorobenzene	10.000	7.989	20#	66	0.03
86 T	Hexachlorobutadiene	10.000	11.949	-19	92	0.03
87 T	Naphthalene	10.000	7.059	29#	58	0.03
88 T	1,2,3-Trichlorobenzene	10.000	8.004	20	66	0.03

Evaluate Continuing Calibration Report

Data File : E:\HPCHEM\1\DATA\06B09\RBV214.D
 Acq On : 9 Feb 2006 12:11 pm
 Sample : CVO01A2538 10/20/50ppb
 Misc : 10ppb8260/20ppbKET-AA/50ppbTBA
 MS Integration Params: 524INT.P

Vial: 3
 Operator: AS
 Inst : T001
 Multiplr: 1.00

Method : E:\HPCHEM\1\METHODS\VO01A25.M (RTE Integrator)
 Title : METHOD 8260 25mls
 Last Update : Thu Jan 26 10:09:44 2006
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 I	1,4-DIFLUOROBENZENE	1.000	1.000	0	83	0.03
2 T	Dichlorodifluoromethane	0.365	0.347	5	74	0.03
3 P,T	Chloromethane	0.399	0.394	1	77	0.01
4 C,T	Vinyl chloride	0.311	0.362	-16	87	0.03
5 T	Bromomethane	0.253	0.311	-23#	110	0.01
6 T	Chloroethane	0.192	0.199	-4	83	0.03
7 T	Trichlorofluoromethane	0.423	0.475	-12	85	0.03
8 T	sec-Propyl alcohol	0.000	0.000	0	0#	0.03
9 T	Acrolein	0.022	0.019	14	80	0.03
10 T	1,1,2-Trichloro-1,2,2-trifl	0.237	0.254	-7	93	0.03
11 T	Acetone	0.036	0.034	6	80	0.03
12 C,T	1,1-Dichloroethene	0.547	0.612	-12	92	0.03
13 T	tert-Butyl alcohol	0.009	0.008	11	70	0.03
14 T	Acetonitrile	0.000	0.000	0	0#	0.04
15 T	Iodomethane	0.327	0.409	-25#	121	0.03
16 T	Methylene chloride	0.515	0.438	15	77	0.01
17 T	Carbon disulfide	1.133	1.059	7	78	0.03
18 T	Acrylonitrile	0.044	0.045	-2	80	0.03
19 T	tert-Butyl methyl ether (MT)	0.330	0.350	-6	83	0.01
20 T	trans-1,2-Dichloroethene	0.493	0.508	-3	84	0.03
21 T	Isopropyl ether (DIPE)	1.006	1.017	-1	81	0.03
22 T	Vinyl acetate	0.241	0.261	-8	81	0.01
23 P,T	1,1-Dichloroethane	0.597	0.630	-6	87	0.03
24 T	tert-Butyl ethyl ether (ETB)	0.549	0.602	-10	86	0.03
25 T	2-Butanone	0.054	0.053	2	75	0.03
26 T	2,2-Dichloropropane	0.335	0.402	-20	99	0.03
27 T	cis-1,2-Dichloroethene	0.524	0.553	-6	86	0.01
28 T	tert-Butyl formate (TBF)	0.000	0.000	0	0#	0.03
29 C,T	Chloroform	0.501	0.528	-5	86	0.03
30 T	Bromochloromethane	0.265	0.253	5	76	0.03
31 T	Tetrahydrofuran	0.049	0.004	92#	8#	0.07
32 T	1,1,1-Trichloroethane	0.444	0.496	-12	93	0.03
33 T	tert-Amyl methyl ether (TAM)	0.370	0.405	-9	87	0.03
34 S	1,2-Dichloroethane-d4	0.198	0.185	7	76	0.03
35 I	CHLOROBENZENE-D5	1.000	1.000	0	79	0.03
36 T	1,1-Dichloropropene	0.160	0.179	-12	87	0.01
37 T	Carbon tetrachloride	0.406	0.483	-19	94	0.01
38 T	1,2-Dichloroethane	0.291	0.297	-2	80	0.01
39 T	Benzene	1.433	1.511	-5	85	0.03
40 T	Trichloroethene	0.384	0.440	-15	90	0.03

(#) = Out of Range

RBV214.D VO01A25.M

Thu Feb 09 15:13:58 2006

2024

Page 1

Evaluate Continuing Calibration Report

Data File : E:\HPCHEM\1\DATA\06B09\RBV214.D
 Acq On : 9 Feb 2006 12:11 pm
 Sample : CVO01A2538 10/20/50ppb
 Misc : 10ppb8260/20ppbKET-AA/50ppbTBA
 MS Integration Params: 524INT.P

Vial: 3
 Operator: AS
 Inst : T001
 Multiplr: 1.00

Method : E:\HPCHEM\1\METHODS\VO01A25.M (RTE Integrator)
 Title : METHOD 8260 25mls
 Last Update : Thu Jan 26 10:09:44 2006
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
41 C,T	1,2-Dichloropropane	0.385	0.419	-9	83	0.03
42 T	Bromodichloromethane	0.401	0.449	-12	85	0.01
43 T	Dibromomethane	0.157	0.160	-2	78	0.03
44 T	4-Methyl-2-pentanone	0.167	0.165	1	75	0.03
45 T	2-Chloroethyl vinyl ether	0.003	0.004	-33#	88	0.04
46 T	cis-1,3-Dichloropropene	0.464	0.512	-10	82	0.03
47 S	Toluene-d8	1.333	1.380	-4	80	0.01
48 C,T	Toluene	1.617	1.675	-4	86	0.03
49 T	Ethyl methacrylate	0.224	0.232	-4	71	0.01
50 T	trans-1,3-Dichloropropene	0.281	0.306	-9	78	0.01
51 T	1,1,2-Trichloroethane	0.216	0.225	-4	80	0.03
52 T	2-Hexanone	0.097	0.092	5	74	0.01
53 T	1,3-Dichloropropane	0.362	0.368	-2	75	0.03
54 T	Tetrachloroethene	0.344	0.384	-12	87	0.03
55 T	Dibromochloromethane	0.251	0.269	-7	79	0.03
56 T	1,2-Dibromoethane	0.222	0.229	-3	77	0.03
57 T	1-Chlorohexane	0.645	0.728	-13	85	0.03
58 P	Chlorobenzene	0.995	1.103	-11	87	0.03
59 T	1,1,1,2-Tetrachloroethane	0.275	0.309	-12	87	0.01
60 C,T	Ethylbenzene	1.716	1.843	-7	83	0.03
61 T	m-Xylene & p-Xylene	1.284	1.357	-6	83	0.03
62 T	o-Xylene	1.340	1.406	-5	81	0.03
63 T	Styrene	0.964	1.057	-10	82	0.03
64 I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0	71	0.03
65 T	Isopropylbenzene	4.545	5.551	-22#	87	0.03
66 P,T	Bromoform	0.406	0.469	-16	77	0.03
67 P,T	1,1,2,2-Tetrachloroethane	0.693	0.720	-4	72	0.03
68 S	4-Bromofluorobenzene	1.200	1.317	-10	76	0.01
69 T	1,2,3-Trichloropropane	0.367	0.362	1	68	0.03
70 T	trans-1,4-Dichloro-2-butene	0.069	0.069	0	65	0.03
71 T	n-Propylbenzene	5.953	6.842	-15	80	0.03
72 T	Bromobenzene	0.957	1.122	-17	83	0.03
73 T	1,3,5-Trimethylbenzene	3.438	3.746	-9	75	0.03
74 T	2-Chlorotoluene	3.750	4.051	-8	82	0.03
75 T	4-Chlorotoluene	2.950	3.325	-13	78	0.03
76 T	tert-Butylbenzene	3.379	3.972	-18	82	0.03
77 T	1,2,4-Trimethylbenzene	3.141	3.304	-5	72	0.03
78 T	sec-Butylbenzene	5.245	6.126	-17	81	0.01
79 T	p-Isopropyltoluene	3.102	3.590	-16	77	0.03
80 T	1,3-Dichlorobenzene	1.745	1.961	-12	80	0.03

(#) = Out of Range

RBV214.D VO01A25.M

Thu Feb 09 15:14:00 2006

2025Page 2

Evaluate Continuing Calibration Report

Data File : E:\HPCHEM\1\DATA\06B09\RBV214.D Vial: 3
 Acq On : 9 Feb 2006 12:11 pm Operator: AS
 Sample : CVO01A2538 10/20/50ppb Inst : T001
 Misc : 10ppb8260/20ppbKET-AA/50ppbTBA Multiplr: 1.00
 MS Integration Params: 524INT.P

Method : E:\HPCHEM\1\METHODS\VO01A25.M (RTE Integrator)
 Title : METHOD 8260 25mls
 Last Update : Thu Jan 26 10:09:44 2006
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81 T	1,4-Dichlorobenzene	1.656	1.813	-9	79	0.03
82 T	n-Butylbenzene	3.033	3.312	-9	72	0.01
83 T	1,2-Dichlorobenzene	1.488	1.605	-8	77	0.03
84 T	1,2-Dibromo-3-chloropropane	0.097	0.091	6	70	0.01
85 T	1,2,4-Trichlorobenzene	0.679	0.642	5	66	0.03
86 T	Hexachlorobutadiene	0.613	0.809	-32#	92	0.03
87 T	Naphthalene	0.609	0.487	20#	58	0.03
88 T	1,2,3-Trichlorobenzene	0.541	0.507	6	66	0.03

ANALYTICAL LOGS

ANALYSIS LOG FOR VOLATILES

SOP ☒ EMAX-8260 Rev.No. 2 ☐ EMAX-5242 Rev.No. 3 ☐ EMAX-CLP-VOA ☐ EMAX 624 Rev.No. 1 ☐

Book # A01 -018

Start Date: 2/9/06 ☐ 5-ml Purge ☒ 25-ml Purge

Sample Prep. ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix		Notes
					pH-W	S	
01	KBV212	B601B19 ✓	2µl				10:15 AM
02	213	C6001A25 37	5µl				
03	214	↓ 38 ✓	↓				
04	215	VD18191 ✓	↓				
05	216	↓ C ✓	↓				
06	217	↓ B ✓	25µl				
07	218	↓ Q ✓	↓				
08	219	SL601G6 ✓	↓				SPLE blank
09	220	06B047-01 ✓	↓		<2		
10	221	06A173-01 ✓	↓		77		1st sample
11	222	↓ -06 ✓	↓		↓		
12	223	↓ -09 ✓	↓		↓		BFB ligand
13	224	06B047-09 ✓	↓		<2		REL, C.D.
14	225	↓ -11 ✓	↓		↓		
15	226	↓ -15 ✓	↓		↓		
16	227	Rins ✓	↓				
17	228	06B047-21 ✓	↓		<2		10:15 AM
18	229	↓ -21M ✓	↓		↓		
19	230	↓ -21S ✓	↓		↓		
20	231	Rins ✓	↓				
21	232	↓	↓				
22							
23							
24							
25							

BATCH

C6001A25 38

Instrument No.		01	
INITIAL CALIBRATION REFERENCE			
DATE	1/25/06		
ICAL ID	V201A25		
STANDARDS			
NAME	ID	CONC. (mg/L)	
DCC	8V/C-10-42.2		
DCC	.34.1		
DCC	.44.1		
BFB	.17.1		
IS/SURR.	.27.2		
LCS	.42.1	10/20/00	
LCS	.44.3		
LCS	.44.2		
SOLVENT	ID		
METHANOL			
DATA FILE	06B01		
Electronic Data Archival			
Location		Date	
HPCHEM_VOA/TO01			

Comments:

Analyzed By: NW

Date Disposed: 2/10/06

Disposed By: NW

ANALYSIS LOG FOR VOLATILES

SOP ☒ EMAX-8260 Rev.No. 2 ☐ EMAX-524.2 Rev.No. 3 ☐ EMAX-CLP-VOA ☐ EMAX 624 Rev.No. 1 ☐

Start Date: 1-25-06 ☐ 5-ml Purge ☒ 25-ml Purge

Book # A01 -017

Sample Prep. ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix		Notes	INSTRUMENT NO.		
					pH	S		Instrument No.	INITIAL CALIBRATION REFERENCE	01
01	RAW251	BEBOA1A19	2.0L					DATE	1-25-06	
02	252	VOA1A2501	0.5/0.5/0.5					ICAL ID	VOA1A25	
03	253	109	0.5/0.5/0.5					STANDARDS		
04	254	103	0.5/0.5/0.5					NAME		CONC. (mg/L)
05	255	104	0.5/0.5/0.5					ID		
06	256	105	0.5/0.5/0.5					DCC	gcs	250
07	257	106	0.5/0.5/0.5					DCC	5260	50/250
08	258	107	0.5/0.5/0.5					DCC	REPAIR	500
09	259	108	0.5/0.5/0.5					DCC	THF	250
10	260	109	0.5/0.5/0.5					BFB		50
11	261	Re purg	25.000					IS/SURR.	50	250
12	262	VOA1A2510	0.5/0.5/0.5					LCS	gcs	250
13	263	Rinse	25.000					LCS	8260	50/250
14	264							LCS	REPAIR	250
15	265	VOA1A2501	0.5/0.5/0.5					LCS	THF	250
16	266	102						SOLVENT		
17	267	Rinse	25.000					METHANOL		
18	268	VOA1A19B						DATA FILE	06A25	
19								Electronic Data Archival		
20								Location		Date
21								HPCHEM_VOA/TOO1		
22								Comments:		
23								Analyzed By:	AS	
24								Date Disposed:		
25								Disposed By:		

BATCH

VOA1A2506

EXTRACTION LOGS

EXTRACTION LOG FOR SPLP(VOLATILES)

Method ☒ EMAX-1312 ☐ Matrix Soil Start Date 02/08/06 Time 17:15 End Date 2/9/06 Time 11:00 Book # ESPa-001

Sample Prep ID	Lab Sample ID	Sample pH	Sample Amount (gm)	SPLP Fluid Required	Extraction Solution (ml)	Extract pH	% Solid in Liquid Phase	Notes
01	SLB001 - SB		—		500			
02	06A173 - 01		25.00		500			
03	↓ - 06		25.01		500			
04	↓ - 09		25.02		500			
05								
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								

PREPARATION BATCH SLB001S

EMAX LABORATORIES, INC., 1835 205th Street, Torrance, CA 90501

2031

Calibration of pH meter		
Buffer ID	Value	Reading
—	7	—
—	4	—
Slope		—
pH meter ID		—

SPLP Solution		
ID	DI water	
pH	2/8/06	
Exp. Date		

Kolary Agitator #	3	rpm	30
-------------------	---	-----	----

Room Temperature (°C)		
High	Low	Thermostat Setting
22.2	22.9	—
		Criteria
		23 ± 2

Comments: rec'd by ck 2/9/06

Prepared By: YK

Checked By: ML

Extract Location: Vug5

LABORATORY REPORT FOR

SES - TECH

CAMP PENDLETON, UST SITE 1441

SW 1312/3520C/8270C SIM
SPLP SEMI VOLATILE ORGANICS BY GC/MS

SDG#: 06A173A

3000

CASE NARRATIVE

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 1441
SDG: 06A173A

SW 1312/3520C/8270C SIM SPLP SEMI VOLATILE ORGANICS BY GC/MS

Three (3) soil samples were received on 01/31/06 for SPLP Semi Volatile Organic analysis by Method 1312/3520C/8270C SIM in accordance with USEPA SW846, 3rd ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blanks were free of contamination at half of the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Napthalene in A173-01 and -09; Acenapthene in A173-06 and -09 were manually reintegrated to correct for improper integration. Chromatograms of before and after manual integrations were kept on file for review.

LAB CHRONICLE

Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 1441

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	WATER					
				Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Prep. Data FN	Batch	Notes
MBLK1W LCS1W LCD 1W MBLK1S 0003-069 0003-074 0003-077	SVB022WB	1	NA	02/13/0621:24	02/09/0615:30	RBK148	RAK026	SVB022W	Method Blank
	SVB022WL	1	NA	02/13/0621:43	02/09/0615:30	RBK149	RAK026	SVB022W	Lab Control Sample (LCS)
	SVB022WC	1	NA	02/13/0622:02	02/09/0615:30	RBK150	RAK026	SVB022W	LCS Duplicate
	SPB001SB	1	NA	02/13/0622:21	02/09/0615:30	RBK151	RAK026	SVB022W	Method Blank
	A173-01	1	NA	02/13/0622:40	02/09/0615:30	RBK152	RAK026	SVB022W	Field Sample
	A173-06	1	NA	02/13/0622:59	02/09/0615:30	RBK153	RAK026	SVB022W	Field Sample
	A173-09	1	NA	02/13/0623:17	02/09/0615:30	RBK154	RAK026	SVB022W	Field Sample

FN	- Filename	% Moist	- Percent Moisture
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SAMPLE RESULTS

SW 1312/3520C/8270C SIM
SPLP SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 15:30
Sample ID   : 0003-069                     Date Analyzed: 02/13/06 22:40
Lab Samp ID : A173-01                      Dilution Factor: 1
Lab File ID : RBK152                       Matrix          : WATER
Ext Btch ID : SVB022W                      % Moisture       : NA
Calib. Ref. : RAK026                       Instrument ID    : T-052
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	1.3	1	.2
ACENAPHTHYLENE	.26J	1	.2
ANTHRACENE	ND	2	.2
BENZO(A)ANTHRACENE	ND	2	.2
BENZO(A)PYRENE	ND	1	.2
BENZO(B)FLUORANTHENE	ND	1	.2
BENZO(K)FLUORANTHENE	ND	2	.2
BENZO(G,H,I)PERYLENE	ND	1	.2
CHRYSENE	ND	2	.2
DIBENZO(A,H)ANTHRACENE	ND	1	.2
FLUORANTHENE	ND	2	.2
FLUORENE	3.7	2	.2
INDENO(1,2,3-CD)PYRENE	ND	1	.2
NAPHTHALENE	2.5	1	.2
PHENANTHRENE	1.8	1	.2
PYRENE	ND	2	.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TERPHENYL-D14	92	50-130	

RL: Reporting Limit
SPLP Extraction Date: 02/08/06 17:55

SW 1312/3520C/8270C SIM
SPLP SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client       : SES-TECH                      Date Collected: 01/31/06
Project      : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.    : 06A173A                      Date Extracted: 02/09/06 15:30
Sample ID    : 0003-074                     Date Analyzed: 02/13/06 22:59
Lab Samp ID  : A173-06                      Dilution Factor: 1
Lab File ID  : RBK153                       Matrix          : WATER
Ext Btch ID  : SVB022W                      % Moisture      : NA
Calib. Ref.  : RAK026                       Instrument ID   : T-052
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
-----	-----	-----	-----
ACENAPHTHENE	1.3	1	.2
ACENAPHTHYLENE	.35J	1	.2
ANTHRACENE	ND	2	.2
BENZO(A)ANTHRACENE	ND	2	.2
BENZO(A)PYRENE	ND	1	.2
BENZO(B)FLUORANTHENE	ND	1	.2
BENZO(K)FLUORANTHENE	ND	2	.2
BENZO(G,H,I)PERYLENE	ND	1	.2
CHRYSENE	ND	2	.2
DIBENZO(A,H)ANTHRACENE	ND	1	.2
FLUORANTHENE	ND	2	.2
FLUORENE	2.5	2	.2
INDENO(1,2,3-CD)PYRENE	ND	1	.2
NAPHTHALENE	ND	1	.2
PHENANTHRENE	.23J	1	.2
PYRENE	ND	2	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
-----	-----	-----
TERPHENYL-D14	79	50-130

RL: Reporting Limit
SPLP Extraction Date: 02/08/06 17:55

SW 1312/3520C/8270C SIM
SPLP SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 15:30
Sample ID   : 0003-077                     Date Analyzed: 02/13/06 23:17
Lab Samp ID : A173-09                      Dilution Factor: 1
Lab File ID : RBK154                       Matrix       : WATER
Ext Btch ID : SVB022W                      % Moisture   : NA
Calib. Ref. : RAK026                      Instrument ID : T-052
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	.96J	1	.2
ACENAPHTHYLENE	.31J	1	.2
ANTHRACENE	ND	2	.2
BENZO(A)ANTHRACENE	ND	2	.2
BENZO(A)PYRENE	ND	1	.2
BENZO(B)FLUORANTHENE	ND	1	.2
BENZO(K)FLUORANTHENE	ND	2	.2
BENZO(G,H,I)PERYLENE	ND	1	.2
CHRYSENE	ND	2	.2
DIBENZO(A,H)ANTHRACENE	ND	1	.2
FLUORANTHENE	ND	2	.2
FLUORENE	3.3	2	.2
INDENO(1,2,3-CD)PYRENE	ND	1	.2
NAPHTHALENE	1.3	1	.2
PHENANTHRENE	2.3	1	.2
PYRENE	ND	2	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	67	50-130

RL: Reporting Limit
SPLP Extraction Date: 02/08/06 17:55

QC SUMMARIES

SW 1312/3520C/8270C SIM
SPLP SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : SES-TECH                      Date Collected: NA
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 02/09/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 15:30
Sample ID   : MBLK1W                       Date Analyzed: 02/13/06 21:24
Lab Samp ID : SVB022WB                     Dilution Factor: 1
Lab File ID : RBK148                       Matrix       : WATER
Ext Btch ID : SVB022W                      % Moisture    : NA
Calib. Ref. : RAK026                      Instrument ID : T-052
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
-----	-----	-----	-----
ACENAPHTHENE	ND	1	.2
ACENAPHTHYLENE	ND	1	.2
ANTHRACENE	ND	2	.2
BENZO(A)ANTHRACENE	ND	2	.2
BENZO(A)PYRENE	ND	1	.2
BENZO(B)FLUORANTHENE	ND	1	.2
BENZO(K)FLUORANTHENE	ND	2	.2
BENZO(G,H,I)PERYLENE	ND	1	.2
CHRYSENE	ND	2	.2
DIBENZO(A,H)ANTHRACENE	ND	1	.2
FLUORANTHENE	ND	2	.2
FLUORENE	ND	2	.2
INDENO(1,2,3-CD)PYRENE	ND	1	.2
NAPHTHALENE	ND	1	.2
PHENANTHRENE	ND	1	.2
PYRENE	ND	2	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
-----	-----	-----
TERPHENYL-D14	110	50-130

RL: Reporting Limit

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 1441
BATCH NO.: 06A173A
METHOD: SW 1312/3520C/8270C SIM

MATRIX: WATER
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: SVB022WB SVB022WL SVB022WC
LAB FILE ID: RBK148 RBK149 RBK150
DATE EXTRACTED: 02/09/0615:30 02/09/0615:30 02/09/0615:30 DATE COLLECTED: NA
DATE ANALYZED: 02/13/0621:24 02/13/0621:43 02/13/0622:02 DATE RECEIVED: 02/09/06
PREP. BATCH: SVB022W SVB022W SVB022W
CALIB. REF: RAK026 RAK026 RAK026

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Acenaphthene	ND	10	5.82	58	10	5.07	51	14	40-130	30
Acenaphthylene	ND	10	6.31	63	10	5.75	57	9	40-130	30
Anthracene	ND	10	8.47	85	10	7.17	72	17	50-130	30
Benzo(a)anthracene	ND	10	7.07	71	10	6.34	63	11	50-130	30
Benzo(a)pyrene	ND	10	7.34	73	10	6.7	67	9	50-130	30
Benzo(b)fluoranthene	ND	10	7.38	74	10	7.31	73	1	50-130	30
Benzo(k)fluoranthene	ND	10	7.09	71	10	5.4	54	27	30-150	30
Benzo(g,h,i)perylene	ND	10	7.36	74	10	6.35	63	15	50-130	30
Chrysene	ND	10	6.4	64	10	5.59	56	13	50-130	30
Dibenzo(a,h)anthracene	ND	10	7.26	73	10	6.64	66	9	40-140	30
Fluoranthene	ND	10	8.72	87	10	7.15	72	20	50-130	30
Fluorene	ND	10	6.54	65	10	5.68	57	14	40-130	30
Indeno(1,2,3-cd)pyrene	ND	10	7.3	73	10	6.54	65	11	30-140	30
Naphthalene	ND	10	5.53	55	10	4.93	49	11	30-130	30
Phenanthrene	ND	10	7.58	76	10	6.78	68	11	40-130	30
Pyrene	ND	10	8.49	85	10	7.25	73	16	40-130	30

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
Terphenyl-d14	10	11.5	115	10	11	110	50-130

SW 1312/3520C/8270C SIM
SPLP SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : SES-TECH                      Date Collected: NA
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 02/09/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 15:30
Sample ID   : MBLK1S                       Date Analyzed: 02/13/06 22:21
Lab Samp ID : SPB001SB                    Dilution Factor: 1
Lab File ID : RBK151                      Matrix       : WATER
Ext Btch ID : SVB022W                     % Moisture   : NA
Calib. Ref. : RAK026                     Instrument ID : T-052
=====

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	ND	1	.2
ACENAPHTHYLENE	ND	1	.2
ANTHRACENE	ND	2	.2
BENZO(A)ANTHRACENE	ND	2	.2
BENZO(A)PYRENE	ND	1	.2
BENZO(B)FLUORANTHENE	ND	1	.2
BENZO(K)FLUORANTHENE	ND	2	.2
BENZO(G,H,I)PERYLENE	ND	1	.2
CHRYSENE	ND	2	.2
DIBENZO(A,H)ANTHRACENE	ND	1	.2
FLUORANTHENE	ND	2	.2
FLUORENE	ND	2	.2
INDENO(1,2,3-CD)PYRENE	ND	1	.2
NAPHTHALENE	ND	1	.2
PHENANTHRENE	ND	1	.2
PYRENE	ND	2	.2
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TERPHENYL-D14	116	50-130	

RL: Reporting Limit
SPLP Extraction Date: 02/08/06 17:55

INITIAL CALIBRATIONS

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: EMAX Inc
Lab Code: EMXT
Lab File ID: RAK020
Instrument ID: T-052

Project: CAMP PENDLETON, UST SITE 1441
SDG No.: 06A173A
DFTPP Injection Date: 01/13/06
DFTPP Injection Time: 10:04

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	37.65
68	Less than 2% of mass 69	0.23(0.5)1
69	Relative abundance of mass 198	43.55
70	Less than 2.0% of mass 69	0.12(0.3)1
127	40.0 - 60.0% of mass 198	44.23
197	Less than 1.0% of mass 198	0.86
198	Base Peak, 100% relative abundance	100.00
199	5.0 - 9.0% of mass 198	5.89
275	10.0 - 30.0% of mass 198	17.05
365	Greater than 1.00% of mass 198	1.70
441	Present, but less than mass 443	10.98
442	Greater than 40.0% of mass 198	72.29
443	17.0 - 23.0% of mass 442	14.75(20.4)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	SSTD0.15	SV52A131	RAK021	01/13/06	11:17
2	SSTD0.5	SV52A132	RAK022	01/13/06	11:35
3	SSTD01	SV52A133	RAK023	01/13/06	11:54
4	SSTD02	SV52A134	RAK024	01/13/06	12:13
5	SSTD05	SV52A135	RAK025	01/13/06	12:32
6	SSTD010	SV52A136	RAK026	01/13/06	12:51
7	SSTD020	SV52A137	RAK027	01/13/06	13:10
8	SSTD040	SV52A138	RAK028	01/13/06	13:28
9	SSTD080	SV52A139	RAK029	01/13/06	13:47
10	SSTD100	SV52A1310	RAK030	01/13/06	14:06
11	SSTD010	ISV52A131	RAK031	01/13/06	14:25

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR

Instrument ID :T052
Beginning DateTime :01/13/06 11:17
Spike Units :PPM
IC File :RAK026

Column Spec :ZB-5MS ID :0.18MM
Ending DateTime :01/13/06 14:06
HPCHEM Method :SV52A13

		.15	.5	1	2	5	10	20	40	80	100			
		11:17	11:35	11:54	12:13	12:32	12:51	13:10	13:28	13:47	14:06			
IDX	Parameters	RAK021	RAK022	RAK023	RAK024	RAK025	RAK026	RAK027	RAK028	RAK029	RAK030	Av_RRF	%_RSD	Av_Rt_M
1	1,4-Dichlorobenzene-d4	1	1	1	1	1	1	1	1	1	1	1	0	2.6133
2	N-Nitrosodimethylamine	-----	-----	0.627	0.924	1.156	1.253	1.265	-----	-----	-----	1.045	25.94	1.3616
3	Phenol-d5	1.107	1.344	1.479	1.617	1.482	1.565	1.579	1.676	1.508	1.534	1.489	10.84	2.3667
4	Phenol	0.791	1.586	1.316	1.517	1.649	1.783	2.027	-----	-----	-----	1.524	25.69	2.3750
5	Bis(2-chloroethyl)ether	1.115	2.378	1.779	2.013	1.837	1.709	1.661	-----	-----	-----	1.784	21.43	2.4393
6	2-Chlorophenol	1.026	1.286	1.396	1.420	1.447	1.464	1.467	-----	-----	-----	1.358	11.70	2.4631
7	N-Nitroso-di-n-propylamine	0.482	0.576	0.608	0.572	0.705	0.665	0.662	-----	-----	-----	0.610	12.30	2.9262
8	2,4-Dimethylphenol	0.992	0.937	1.002	1.054	1.099	1.056	1.096	-----	-----	-----	1.034	5.76	3.3571
9	2,4-Dichlorophenol	0.581	0.693	0.794	0.897	0.980	1.038	1.117	-----	-----	-----	0.872	22.08	3.5131
10	Naphthalene	4.857	4.551	4.698	4.393	4.331	4.169	4.118	-----	-----	-----	4.445	6.11	3.6417
11	4-Chloro-3-methylphenol	0.662	0.746	0.857	0.964	1.123	1.180	1.259	-----	-----	-----	0.970	23.39	4.1547
12	2-Methylnaphthalene	2.251	2.165	2.429	2.440	2.562	2.492	2.552	-----	-----	-----	2.413	6.26	4.2583
13	1-Methylnaphthalene	1.919	2.009	2.205	2.154	2.126	2.014	2.067	-----	-----	-----	2.071	4.76	4.3417
14	2,4,6-Trichlorophenol	-----	0.292	0.339	0.404	0.551	0.576	0.639	-----	-----	-----	0.467	30.23	4.5250
15	2,4,5-Trichlorophenol	-----	0.353	0.405	0.500	0.559	0.635	0.712	-----	-----	-----	0.527	25.88	4.5541
16	Acenaphthylene	3.388	3.107	3.286	3.432	3.686	3.546	3.634	-----	-----	-----	3.440	5.90	5.0750
17	Acenaphthene	2.537	2.053	2.071	2.020	2.046	1.962	2.119	-----	-----	-----	2.116	9.07	5.2274
18	Fluorene	1.941	1.747	1.894	1.986	2.186	2.114	2.263	-----	-----	-----	2.019	8.89	5.7083
19	Azobenzene	1.977	1.978	2.200	2.318	2.610	2.512	2.638	-----	-----	-----	2.319	12.08	5.8750
20	Phenanthrene-d10	1	1	1	1	1	1	1	1	1	1	1	0	6.5792
21	Hexachlorobenzene	0.373	0.393	0.402	0.407	0.377	0.345	0.328	-----	-----	-----	0.375	7.86	6.2095
22	Pentachlorophenol	-----	0.163	0.186	0.279	0.395	0.497	0.524	-----	-----	-----	0.341	45.53	6.4111
23	Phenanthrene	1.287	1.381	1.388	1.400	1.369	1.333	1.290	-----	-----	-----	1.350	3.46	6.5988
24	Anthracene	1.147	1.230	1.225	1.241	1.328	1.269	1.240	-----	-----	-----	1.240	4.36	6.6441
25	Fluoranthene	0.957	1.010	1.041	1.111	1.159	1.136	1.181	-----	-----	-----	1.085	7.71	7.7036
26	Pyrene	1.006	1.051	1.082	1.166	1.246	1.129	1.186	-----	-----	-----	1.124	7.39	7.9083
27	Terphenyl-d14	0.425	0.439	0.465	0.505	0.535	0.523	0.547	0.521	0.506	0.458	0.492	8.62	8.1083
28	Perylene-d12	1	1	1	1	1	1	1	1	1	1	1	0	10.3058
29	Benzo(a)anthracene	1.774	1.694	1.600	1.573	1.485	1.475	1.346	-----	-----	-----	1.564	9.19	9.0488
30	Chrysene	1.914	1.675	1.683	1.751	1.623	1.654	1.298	-----	-----	-----	1.657	11.17	9.0786
31	bis(2-Ethylhexyl)phthalate	1.403	1.459	1.569	1.728	1.771	1.871	1.664	-----	-----	-----	1.638	10.37	9.1738
32	Benzo(b)fluoranthene	1.487	1.479	1.413	1.443	1.542	1.788	1.567	-----	-----	-----	1.531	8.17	9.9905
33	Benzo(k)fluoranthene	1.432	1.531	1.575	1.671	1.660	1.389	1.558	-----	-----	-----	1.545	6.86	10.0143
34	Benzo(a)pyrene	1.219	1.292	1.552	1.571	1.590	1.558	1.527	-----	-----	-----	1.473	10.25	10.2571
35	Indeno(1,2,3-cd)pyrene	3.836	3.701	3.798	3.912	4.307	4.175	4.440	-----	-----	-----	4.024	7.03	11.1143
36	Dibenzo(a,h)anthracene	1.503	1.462	1.485	1.550	1.718	1.700	1.764	-----	-----	-----	1.597	7.86	11.1357
37	Benzo(g,h,i)perylene	3.417	3.337	3.415	3.499	3.841	3.641	3.848	-----	-----	-----	3.571	5.86	11.2988

Ave_%RSD : 12.6 Max_%RSD : 45.5

Use Least Square Linear Regression with weighting factor of inverse concentration for comps with %_RSD > 15

Resp_Ratio = x0 + x1 * Amt_Ratio

IDX	Parameter	x0	x1	CCF
2	N-Nitrosodimethylamine	-0.07046	1.30590	0.9999
4	Phenol	-0.02540	1.90572	0.9960
5	Bis(2-chloroethyl)ether	0.00454	1.71610	0.9972
9	2,4-Dichlorophenol	-0.01362	1.07614	0.9981
11	4-Chloro-3-methylphenol	-0.01637	1.21611	0.9978
14	2,4,6-Trichlorophenol	-0.02466	0.62508	0.9976
15	2,4,5-Trichlorophenol	-0.02495	0.68743	0.9968
22	Pentachlorophenol	-0.02745	0.51690	0.9953

SECOND SOURCE
VERIFICATION

CONTINUE_CALIBRATION - CALIBRATION VERIFICATION

Instrument ID :T052

IC_Beginning DateTime :01/13/06 11:17

Spike Amount :10 PPM

CC/CV File :RAK031

IC File :RAK026

Column Spec :ZB-5MS ID :0.18MM

IC_Ending DateTime :01/13/06 14:06

HPChem Method :SV52A13

Date_Time :01/13/06 14:25

M_IDX	Parameters	CC_Con	CC%D	CC_Resp	CCRRF	AvRRF	CC_Rtm	AvRtm	%_RSD	Co_X0	Co_X1	Co_X2	Co_Cor
1	1,4-Dichlorobenzene-d4	10.000	0	168615	1	1	2.617	2.613	0				
2	N-Nitrosodimethylamine	10.092	0.9	210341	1.247	1.045	1.275	1.362	25.94	-0.0705	1.3059		0.9999
3	Phenol-d5												
4	Phenol	8.804	-12.0	278620	1.652	1.524	2.367	2.375	25.69	-0.0254	1.9057		0.9960
5	Bis(2-chloroethyl)ether	9.924	-0.8	287951	1.708	1.784	2.433	2.439	21.43	0.0045	1.7161		0.9972
6	2-Chlorophenol	9.765	-2.3	223615	1.326	1.358	2.467	2.463	11.70				
7	N-Nitroso-di-n-propylamine	11.379	13.8	116998	0.694	0.610	2.925	2.926	12.30				
8	2,4-Dimethylphenol	9.837	-1.6	171476	1.017	1.034	3.358	3.357	5.76				
9	2,4-Dichlorophenol	9.493	-5.1	169970	1.008	0.872	3.508	3.513	22.08	-0.0136	1.0761		0.9981
10	Naphthalene	9.489	-5.1	711318	4.219	4.445	3.642	3.642	6.11				
11	4-Chloro-3-methylphenol	9.350	-6.5	188971	1.121	0.970	4.150	4.155	23.39	-0.0164	1.2161		0.9978
12	2-Methylnaphthalene	9.789	-2.1	398292	2.362	2.413	4.258	4.258	6.26				
13	1-Methylnaphthalene	10.045	0.5	350741	2.080	2.071	4.342	4.342	4.76				
14	2,4,6-Trichlorophenol	8.957	-10.4	90251	0.535	0.467	4.525	4.525	30.23	-0.0247	0.6251		0.9976
15	2,4,5-Trichlorophenol	9.265	-7.3	103188	0.612	0.527	4.550	4.554	25.88	-0.0249	0.6874		0.9968
16	Acenaphthylene	10.160	1.6	589299	3.495	3.440	5.075	5.075	5.90				
17	Acenaphthene	9.108	-8.9	324913	1.927	2.116	5.233	5.227	9.07				
18	Fluorene	10.047	0.5	342027	2.028	2.019	5.708	5.708	8.89				
19	Azobenzene	9.587	-4.1	374819	2.223	2.319	5.875	5.875	12.08				
20	Phenanthrene-d10	10.000	0	305706	1	1	6.583	6.579	0				
21	Hexachlorobenzene	8.994	-10.1	103117	0.337	0.375	6.208	6.209	7.86				
22	Pentachlorophenol	7.486	-25.1	109902	0.360	0.341	6.408	6.411	45.53	-0.0275	0.5169		0.9953
23	Phenanthrene	9.757	-2.4	402571	1.317	1.350	6.600	6.599	3.46				
24	Anthracene	9.790	-2.1	371092	1.214	1.240	6.650	6.644	4.36				
25	Fluoranthene	9.439	-5.6	313151	1.024	1.085	7.708	7.704	7.71				
26	Pyrene	9.060	-9.4	311255	1.018	1.124	7.908	7.908	7.39				
27	Terphenyl-d14												
28	Perylene-d12	10.000	0	120765	1	1	10.308	10.306	0				
29	Benzo(a)anthracene	10.813	8.1	204231	1.691	1.564	9.050	9.049	9.19				
30	Chrysene	11.094	10.9	221986	1.838	1.657	9.083	9.079	11.17				
31	bis(2-Ethylhexyl)phthalate	12.165	21.6	240602	1.992	1.638	9.175	9.174	10.37				
32	Benzo(b)fluoranthene	9.728	-2.7	179891	1.490	1.531	9.992	9.991	8.17				
33	Benzo(k)fluoranthene	11.205	12.0	209069	1.731	1.545	10.017	10.014	6.86				
34	Benzo(a)pyrene	10.232	2.3	182020	1.507	1.473	10.258	10.257	10.25				
35	Indeno(1,2,3-cd)pyrene	9.512	-4.9	462322	3.828	4.024	11.117	11.114	7.03				
36	Dibenzo(a,h)anthracene	9.359	-6.4	180555	1.495	1.597	11.133	11.136	7.86				
37	Benzo(g,h,i)perylene	9.473	-5.3	408555	3.383	3.571	11.300	11.299	5.86				

3015

EMP
11/17/06

DAILY CALIBRATIONS

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: EMAX Inc Project: CAMP PENDLETON, UST SITE 1441
Lab Code: EMXT SDG No.: 06A173A
Lab File ID: RBK146 DFTPP Injection Date: 02/13/06
Instrument ID: T-052 DFTPP Injection Time: 20:08

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	31.11
68	Less than 2% of mass 69	0.10(0.3)1
69	Relative abundance of mass 198	37.57
70	Less than 2.0% of mass 69	0.13(0.3)1
127	40.0 - 60.0% of mass 198	47.84
197	Less than 1.0% of mass 198	0.34
198	Base Peak, 100% relative abundance	100.00
199	5.0 - 9.0% of mass 198	6.53
275	10.0 - 30.0% of mass 198	15.50
365	Greater than 1.00% of mass 198	1.32
441	Present, but less than mass 443	10.11
442	Greater than 40.0% of mass 198	65.99
443	17.0 - 23.0% of mass 442	13.77(20.9)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	SSTD010	CSV52A1313	RBK147	02/13/06	21:06
2	MBLK1W	SVB022WB	RBK148	02/13/06	21:24
3	LCS1W	SVB022WL	RBK149	02/13/06	21:43
4	LCD1W	SVB022WC	RBK150	02/13/06	22:02
5	MBLK1S	SPB001SB	RBK151	02/13/06	22:21
6	0003-069	A173-01	RBK152	02/13/06	22:40
7	0003-074	A173-06	RBK153	02/13/06	22:59
8	0003-077	A173-09	RBK154	02/13/06	23:17

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMAX Inc
 Lab Code: EMXT
 Lab File ID: RAK026
 Instrument ID: T-052

Project: CAMP PENDLETON, UST SITE 1441
 SDG No.: 06A173A
 Date Analyzed: 01/13/06
 Time Analyzed: 12:51

	IS1(DCB)	RT #	IS2(NPT)	RT #	IS3(ANT)	RT #
	AREA #		AREA #		AREA #	
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	165847	2.61	0	0.00	0	0.00
UPPER LIMIT	331694	3.11	0	0.50	0	0.50
LOWER LIMIT	82924	2.11	0	-0.50	0	-0.50
=====	=====	=====	=====	=====	=====	=====
SAMPLE ID						
=====	=====	=====	=====	=====	=====	=====
1 SSTD010	169822	2.61	0	0.00	0	0.00
2 MBLK1W	184861	2.61	0	0.00	0	0.00
3 LCS1W	208732	2.60	0	0.00	0	0.00
4 LCD1W	239885	2.61	0	0.00	0	0.00
5 MBLK1S	214626	2.61	0	0.00	0	0.00
6 0003-069	112332	2.60	0	0.00	0	0.00
7 0003-074	127607	2.60	0	0.00	0	0.00
8 0003-077	170864	2.61	0	0.00	0	0.00

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk

* Values outside of QC limits.

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMAX Inc
 Lab Code: EMXT
 Lab File ID: RAK026
 Instrument ID: T-052

Project: CAMP PENDLETON, UST SITE 1441
 SDG No.: 06A173A
 Date Analyzed: 01/13/06
 Time Analyzed: 12:51

	IS4(PHN)		IS5(CRY)		IS6(PRY)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	318992	6.58	0	0.00	172970	10.31
UPPER LIMIT	637984	7.08	0	0.50	345940	10.81
LOWER LIMIT	159496	6.08	0	-0.50	86485	9.81
=====	=====	=====	=====	=====	=====	=====
SAMPLE ID						
=====	=====	=====	=====	=====	=====	=====
1 SSTD010	365284	6.59	0	0.00	233523	10.34
2 MBLK1W	281508	6.58	0	0.00	149251	10.33
3 LCS1W	365388	6.58	0	0.00	234190	10.33
4 LCD1W	400655	6.59	0	0.00	239416	10.34
5 MBLK1S	366068	6.58	0	0.00	225774	10.33
6 0003-069	253260	6.58	0	0.00	203250	10.33
7 0003-074	279051	6.59	0	0.00	213656	10.33
8 0003-077	330911	6.58	0	0.00	237635	10.33

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk

* Values outside of QC limits.

Evaluate Continuing Calibration Report

Data File : D:\CHEMDATA\06B13\RBK147.D

Vial: 3

Acq On : 13 FEB 2006 21:06

Operator: KV

Sample : CSV52A1313

Inst : TO52

Misc :

Multiplr: 1.00

MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\SV52A13.M (RTE Integrator)

Title : METHOD 8270C SIM GCMS-QP5000

Last Update : Fri Jan 13 14:23:17 2006

Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 I	1,4-Dichlorobenzene-d4	10.000	10.000	0	102	0.00
2 T	N-Nitrosodimethylamine	10.000	0.000	100#	0	-1.28#
3 S	Phenol-d5	10.000	12.162	-22#	118	0.02
4 T	Phenol	10.000	10.857	-9	117	0.03
5 T	Bis(2-chloroethyl)ether	10.000	10.256	-3	106	0.00
6 T	2-Chlorophenol	10.000	12.363	-24#	117	0.00
7 P	N-Nitroso-di-n-propylamine	10.000	8.047	20	76	0.00
8 T	2,4-Dimethylphenol	10.000	12.851	-29#	129	0.00
9 T	2,4-Dichlorophenol	10.000	11.991	-20	126	0.00
10 T	Naphthalene	10.000	10.275	-3	112	0.00
11 T	4-Chloro-3-methylphenol	10.000	11.360	-14	119	0.02
12 T	2-Methylnaphthalene	10.000	11.282	-13	112	0.00
13	1-Methylnaphthalene	10.000	10.449	-4	110	0.00
14 T	2,4,6-Trichlorophenol	10.000	12.147	-21#	131	0.03
15 T	2,4,5-Trichlorophenol	10.000	11.983	-20	129	-0.01
16 T	Acenaphthylene	10.000	11.218	-12	111	0.00
17 C	Acenaphthene	10.000	10.521	-5	116	0.00
18 T	Fluorene	10.000	12.159	-22#	119	0.00
19 T	Azobenzene	10.000	10.937	-9	103	0.00
20 I	Phenanthrene-d10	10.000	10.000	0	115	0.00
21 T	Hexachlorobenzene	10.000	8.952	10	111	0.02
22 T	Pentachlorophenol	10.000	10.144	-1	115	0.03
23 T	Phenanthrene	10.000	10.468	-5	121	0.00
24 T	Anthracene	10.000	11.415	-14	128	0.00
25 C	Fluoranthene	10.000	11.728	-17	128	0.02
26 T	Pyrene	10.000	11.850	-19	135	0.03
27 S	Terphenyl-d14	10.000	11.336	-13	122	0.00
28 I	Perylene-d12	10.000	10.000	0	135	0.03
29 T	Benzo(a)anthracene	10.000	9.801	2	140	0.02
30 T	Chrysene	10.000	9.095	9	123	0.02
31 T	bis(2-Ethylhexyl)phthalate	10.000	14.040	-40#	166	0.00
32 T	Benzo(b)fluoranthene	10.000	10.957	-10	127	0.03
33 T	Benzo(k)fluoranthene	10.000	10.565	-6	159	0.02
34 C	Benzo(a)pyrene	10.000	11.491	-15	147	0.03
35 T	Indeno(1,2,3-cd)pyrene	10.000	11.722	-17	153	0.04
36 T	Dibenzo(a,h)anthracene	10.000	11.483	-15	146	0.03
37 T	Benzo(g,h,i)perylene	10.000	11.268	-13	149	0.04

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

RBK147.D SV52A13.M

Tue Feb 14 09:51:36 2006

TO52

3020

Page 1

Evaluate Continuing Calibration Report

Data File : D:\CHEMDATA\06B13\RBK147.D

Acq On : 13 FEB 2006 21:06

Sample : CSV52A1313

Misc :

MS Integration Params: RTEINT.P

Vial: 3

Operator: KV

Inst : T052

Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\SV52A13.M (RTE Integrator)

Title : METHOD 8270C SIM GCMS-QP5000

Last Update : Fri Jan 13 14:23:17 2006

Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0	102	0.00
2 T	N-Nitrosodimethylamine	1.045	0.000#	100#	0#	-1.28#
3 S	Phenol-d5	1.489	1.811	-22#	118	0.02
4 T	Phenol	1.524	2.044	-34#	117	0.03
5 T	Bis(2-chloroethyl)ether	1.784	1.765	1	106	0.00
6 T	2-Chlorophenol	1.358	1.679	-24#	117	0.00
7 P	N-Nitroso-di-n-propylamine	0.610	0.491	20	76	0.00
8 T	2,4-Dimethylphenol	1.034	1.328	-28#	129	0.00
9 T	2,4-Dichlorophenol	0.872	1.277	-46#	126	0.00
10 T	Naphthalene	4.445	4.568	-3	112	0.00
11 T	4-Chloro-3-methylphenol	0.970	1.365	-41#	119	0.02
12 T	2-Methylnaphthalene	2.413	2.722	-13	112	0.00
13	1-Methylnaphthalene	2.071	2.164	-4	110	0.00
14 T	2,4,6-Trichlorophenol	0.467	0.735	-57#	131	0.03
15 T	2,4,5-Trichlorophenol	0.527	0.799	-52#	129	-0.01
16 T	Acenaphthylene	3.440	3.859	-12	111	0.00
17 C	Acenaphthene	2.116	2.226	-5	116	0.00
18 T	Fluorene	2.019	2.455	-22#	119	0.00
19 T	Azobenzene	2.319	2.536	-9	103	0.00
20 I	Phenanthrene-d10	1.000	1.000	0	115	0.00
21 T	Hexachlorobenzene	0.375	0.336	10	111	0.02
22 T	Pentachlorophenol	0.341	0.497	-46#	115	0.03
23 T	Phenanthrene	1.350	1.413	-5	121	0.00
24 T	Anthracene	1.240	1.415	-14	128	0.00
25 C	Fluoranthene	1.085	1.273	-17	128	0.02
26 T	Pyrene	1.124	1.332	-19	135	0.03
27 S	Terphenyl-d14	0.492	0.558	-13	122	0.00
28 I	Perylene-d12	1.000	1.000	0	135	0.03
29 T	Benzo(a)anthracene	1.564	1.533	2	140	0.02
30 T	Chrysene	1.657	1.507	9	123	0.02
31 T	bis(2-Ethylhexyl)phthalate	1.638	2.299	-40#	166	0.00
32 T	Benzo(b)fluoranthene	1.531	1.678	-10	127	0.03
33 T	Benzo(k)fluoranthene	1.545	1.632	-6	159	0.02
34 C	Benzo(a)pyrene	1.473	1.693	-15	147	0.03
35 T	Indeno(1,2,3-cd)pyrene	4.024	4.717	-17	153	0.04
36 T	Dibenzo(a,h)anthracene	1.597	1.834	-15	146	0.03
37 T	Benzo(g,h,i)perylene	3.571	4.024	-13	149	0.04

(#) = Out of Range

RBK147.D SV52A13.M

SPCC's out = 0 CCC's out = 0

Tue Feb 14 09:51:43 2006

T0523021

Page 1

ANALYTICAL LOG

ANALYSIS RUN LOG FOR SEMIVOLATILES

Book #52-011

SOP ☐ EMAX-8270 Rev. No. 2 ☒ EMAX-8270SIM Rev. No. 0 ☐ EMAX-CLPSVOA ☐ EMAX-M8270SIM Rev. No. 1 ☐

Method File: 3V52A13 Tune File: 51v1

Start Date/Time: 13/06 10:04

End Date/Time: 1/13/06 14:25

Preparative Batch		Data File Name	Run ID	DF	Matrix		Notes
					S	W	
NA	RAK019	IBS2A1301	VA				
	020	DFTS2A1301					0.15 ppm
	021	SVS2A131					0.5
	022		2				1
	023		3				2
	024		4				5
	025		5				10
	026		6				20
	027		7				40
	028		8				50
	029		9				100
	030		10				ICV
	031	ISVS2A131					1/13/06

Instrument No: 52		INITIAL CALIBRATION REFERENCE	
Date	1/13/06	ICAL ID	SVS2A13

Standards		
Name	ID	Conc. (mg)
DFTPP	SS2B-04-21-3	50
DCC	SS2C-04-68-1	10
INT. STD.	SS2B-04-18-3	2000
ICV	SS2C-04-68-2	10
0.15	SS2C-04-67-3	0.15

Solvent	ID
CH ₂ Cl ₂	45257

DATA FILE	06A13
-----------	-------

Electronic Data Archival	
Location	Date
HPCHEM_SVOA/T052	1/17/0

Comments:

Analyzed By: NA
Date Disposed: NA
Disposed by: NA

This page is checked during data review.

This page is checked during data review.

ANALYSIS RUN LOG FOR SEMIVOLATILES

SOP ☐ EMAX-8270 Rev. No. 2 ☒ EMAX-8270SIM Rev. No. 0 ☐ EMAX-CLPSVOA ☐ EMAX-M8270SIM Rev. No. 1 ☐

Method File: 5V52A13 Tune File: 51M

Start Date/Time: 2/13/66 20:08

End Date/Time: 2/13/06 23:17

Book #52-011

[illegible]

EXTRACTION LOG

EXTRACTION LOG FOR SEMIVOLATILES

SOP ☐ EMAX-3540 Rev. No.: 0 ☐ EMAX-3550 Rev. No.: 1 ☐ EMAX-3520 Rev. No.: 1 ☐ EMAX-CLP-SVOA ☐ Book # ESV-029

Matrix: WATER Initial Start Date/Time: 2/9/06 15:30 End Date/Time: 2/10/06 9:30

Sample Prep ID	Lab Sample ID	Sonicator Number	Sample Amount (g/ml)	pH	Extract Volume (ml)	Clean-up [G] [F] [A] [C]	Notes	Standards	ID	Amount Added (ml)
*01	PVB022-WB	N/A	1000	-	1			Surrogate	VP2B-04-24-1	0.1
*02	-WL		1000	-	1			Surrogate	VP2B-04-23-3	0.05
*03	-WC		1000	-	1			Reagent		
*04	PPB001-SB		1000		1			CH ₂ Cl ₂	45257	
*05	OGA173-01		1000		1			Na ₂ SO ₄	45045	
*06	-OG		1000		1			H ₂ SO ₄	4510-3m 2/10/06	
*07	-OG		1000		1			NaOH	SP1B-01-307	
*08								Silica Sand		
*09	2/10/06		JM							
*10										
*11										
*12										
*13										
*14										
*15										
*16								Concentrator		
*17								Water Bath Temperature Setting (°C)	35	Thermometer Reading (°C)
*18									35	35
*19									35	35
*20										
*21										
*22										
*23										
*24										
*25										
*26										
*27										
*28										

Comments: Thermometer ID = T₁

Prepared By: JM Witnessed By: JR

Standard Added By: JM

Checked By: ML

Extract Received by: W 2/10/06 12:00 Location: SEA3-9

Disposed by: _____ Disposed on: _____

PREPARATION BATCH: * PVB 022 W

EXTRACTION LOG FOR SPLP

Page 93

Method ☒ EMAX-1312 ☐ Start Date 2/8/06 Time 17:55 End Date 2/9/06 Time 12:00 Matrix Soil Book # ESP-002

Sample Prep ID	Lab Sample ID	Sample pH	Sample Amount (gm)	SPLP Fluid Required	Extraction Solution (ml)	Extract pH	% Solid in Liquid Phase	Notes
*01	SPB001 - SB	-	-	2	2000	-	NA	
*02	06A173 - 01	-	100.02	2	2000	-		
*03	↓ -06	-	100.03	2	2000	-		
*04	↓ -09	-	100.03	2	2000	-		
*05								
*06								
*07								
*08								
*09								
*10								
*11								
*12								
*13								
*14								
*15								
*16								
*17								
*18								
*19								
*20								
*21								
*22								
*23								
*24								
*25								
*26								

PREPARATION BATCH * SPB001S

Calibration of pH meter		
Buffer ID	Value	Reading
SWFA-06-229	7	7.00
SWFA-06-237	4	4.01
Slope		
pH meter ID		

SPLP Solution #2		
ID	SPIB-01-329	
pH	5.03	
Exp. Date	1/5/07	

Rotary Agitator #	1	rpm	30
-------------------	---	-----	----

Room Temperature (°C)		
High	Low	Thermostat Setting
23.2	22.5	23 ± 2

Comments:

Prepared By: YK

Checked By: ML

Extract Location: SE06

LABORATORY REPORT FOR

SES - TECH

CAMP PENDLETON, UST SITE 1441

METHOD 1312/3520C/8015B
SPLP PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 06A173A

5000

CASE NARRATIVE

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 1441
SDG: 06A173A

METHOD 1312/3520C/8015B SPLP PETROLEUM HYDROCARBONS BY EXTRACTION

Three (3) soil samples were received on 01/31/06 for SPLP Petroleum Hydrocarbons by Extraction analysis by Method 1312/3520C/8015B in accordance with SW846 3RD Edition.

1. Holding Time

Analytical holding time was met. SPLP extraction was performed on 02/08/06 and completed on 02/09/06. 3520C extraction was performed on 02/09/06 and completed on 02/10/06.

2. Calibration

Initial calibration was seven points for Diesel. %RSDs were within 20%. Continuing calibrations were carried out at 12-hour intervals and all recoveries were within 85-115%.

3. Method Blank

Method blanks were free of contamination at half of the reporting limit.

4. Surrogate Recovery

All recoveries were within QC limits.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No sample was designated for MS/MSD.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met. Sample results were quantitated from C10 to C24 using Diesel (C10-C24) calibration factor.

The samples displayed diesel-like fuel pattern.

LAB CHRONICLE
SPLP PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 1441
SDG NO. : 06A173A
Instrument ID : GCT050

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	WATER		Extraction Date/Time	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
				Analysis Date/Time						
MBLK1W	DSB023WQ	1	NA	02/10/0619:01		02/09/0615:00	TB09041A	TB09039A	DSB023W	Method Blank
LCS1W	DSB023WL	1	NA	02/10/0614:05		02/09/0615:00	TB09034A	TB09027A	DSB023W	Lab Control Sample (LCS)
LCD1W	DSB023WC	1	NA	02/10/0614:47		02/09/0615:00	TB09035A	TB09027A	DSB023W	LCS Duplicate
MBLK1S	SPB001SB	1	NA	02/10/0616:11		02/09/0615:00	TB09037A	TB09027A	DSB023W	Method Blank
0003-069	A173-01	1	NA	02/10/0619:43		02/09/0615:00	TB09042A	TB09039A	DSB023W	Field Sample
0003-074	A173-06	1	NA	02/10/0620:25		02/09/0615:00	TB09043A	TB09039A	DSB023W	Field Sample
0003-077	A173-09	1	NA	02/10/0621:07		02/09/0615:00	TB09044A	TB09039A	DSB023W	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 1312/3520C/8015B
SPLP PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 15:00
Sample ID   : 0003-069                     Date Analyzed: 02/10/06 19:43
Lab Samp ID : A173-01                      Dilution Factor: 1
Lab File ID : TB09042A                     Matrix          : WATER
Ext Btch ID : DSB023W                      % Moisture      : NA
Calib. Ref. : TB09039A                     Instrument ID   : GCT050
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
DIESEL	1.2	.1	.025

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	65	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 1312/3520C/8015B
SPLP PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 15:00
Sample ID   : 0003-074                     Date Analyzed: 02/10/06 20:25
Lab Samp ID : A173-06                      Dilution Factor: 1
Lab File ID : TB09043A                     Matrix          : WATER
Ext Btch ID : DSB023W                      % Moisture       : NA
Calib. Ref. : TB09039A                     Instrument ID    : GCT050
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
DIESEL	1.2	.1	.025

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	112	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

METHOD 1312/3520C/8015B
SPLP PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : SES-TECH                      Date Collected: 01/31/06
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 01/31/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 15:00
Sample ID   : 0003-077                     Date Analyzed: 02/10/06 21:07
Lab Samp ID : A173-09                      Dilution Factor: 1
Lab File ID : TB09044A                    Matrix       : WATER
Ext Btch ID : DSB023W                     % Moisture    : NA
Calib. Ref. : TB09039A                    Instrument ID : GCT050
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
DIESEL	1	.1	.025

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	113	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

5006

QC SUMMARIES

METHOD 1312/3520C/8015B
SPLP PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : SES-TECH                      Date Collected: NA
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 02/09/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 15:00
Sample ID   : MBLK1W                       Date Analyzed: 02/10/06 19:01
Lab Samp ID : DSB023WQ                     Dilution Factor: 1
Lab File ID : TB09041A                     Matrix       : WATER
Ext Btch ID : DSB023W                      % Moisture    : NA
Calib. Ref. : TB09039A                     Instrument ID : GCT050
=====
  
```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
DIESEL	ND	.1	.025

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	109	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 1441
BATCH NO.: 06A173A
METHOD: METHOD 1312/3520C/8015B

MATRIX: WATER
DILUTION FACTOR: 1 1 1 % MOISTURE: NA
SAMPLE ID: MBLK1W
LAB SAMP ID: DSB023WQ DSB023WL DSB023WC
LAB FILE ID: TB09041A TB09034A TB09035A
DATE EXTRACTED: 02/09/0615:00 02/09/0615:00 02/09/0615:00 DATE COLLECTED: NA
DATE ANALYZED: 02/10/0619:01 02/10/0614:05 02/10/0614:47 DATE RECEIVED: 02/09/06
PREP. BATCH: DSB023W DSB023W DSB023W
CALIB. REF: TB09039A TB09027A TB09027A

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	ND	5	4.56	91	5	4.29	86	6	65-135	30

SURROGATE PARAMETER	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	QC LIMIT (%)
Hexacosane	.25	.295	118	.25	.278	111	65-135

METHOD 1312/3520C/8015B
SPLP PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : SES-TECH                      Date Collected: NA
Project     : CAMP PENDLETON, UST SITE 1441 Date Received: 02/09/06
Batch No.   : 06A173A                      Date Extracted: 02/09/06 15:00
Sample ID   : MBLK1S                       Date Analyzed: 02/10/06 16:11
Lab Samp ID : SPB001SB                     Dilution Factor: 1
Lab File ID : TB09037A                     Matrix          : WATER
Ext Btch ID : DSB023W                      % Moisture       : NA
Calib. Ref. : TB09027A                     Instrument ID    : GCT050
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
DIESEL	ND	.1	.025

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	113	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

INITIAL CALIBRATION

INITIAL CALIBRATION
METHOD M8015

Lab Name : EMAX Inc
Instrument ID : GCT050
GC Column : DB-5
Column size ID : 30MX0.25MM
LFID & Datetime: TA31009A 01/31/06 19:57
LFID & Datetime: TA31010A 01/31/06 20:39
LFID & Datetime: TA31004A 01/31/06 16:26
LFID & Datetime: TA31005A 01/31/06 17:08
LFID & Datetime: TA31006A 01/31/06 17:51
LFID & Datetime: TA31007A 01/31/06 18:33
LFID & Datetime: TA31008A 01/31/06 19:15
CONC UNIT: ppm

COMPOUND	CONC X	CALIBRATION FACTORS (AREA or HEIGHT)/UNIT							MEAN	%RSD
		1.00X	2.00X	10.00X	20.00X	100.00X	300.00X	600.00X		
DIESEL(TOTAL)	5.00	✓ 29695	✓ 33603	✓ 21928	✓ 26105	✓ 23350	✓ 24931	✓ 25894	✓ 26500.7	15.0 ✓
DIESEL(C10-C24)	5.00	✓ 29695	✓ 33603	✓ 21896	✓ 26080	✓ 23330	✓ 24845	✓ 25775	✓ 26460.6	15.1 ✓
DIESEL(C10-C28)	5.00	✓ 29695	✓ 33603	✓ 21928	✓ 26105	✓ 23350	✓ 24872	✓ 25800	✓ 26478.8	15.0 ✓
SURROGATE	X	0.50X	1.00X	2.00X	3.00X	5.00X	7.00X	11.00X	MEAN	%RSD
BROMOBENZENE	20.00	-1	✓ 13517	✓ 14356	✓ 15142	✓ 13341	✓ 14495	✓ 14436	✓ 14214.3	4.7 ✓
HEXACOSANE	5.00	-1	✓ 29580	✓ 29371	✓ 31178	✓ 27128	✓ 28544	✓ 28106	✓ 28984.5	4.8 ✓

DS50A31.MET

5012 *2/1/06*

INITIAL CALIBRATION
METHOD M8015

Lab Name : EMAX Inc
Instrument ID : GCT050
GC Column : DB-5
Column size ID : 30MX0.25MM
LFID & Datetime: TA31009A 01/31/06 19:57
LFID & Datetime: TA31010A 01/31/06 20:39
LFID & Datetime: TA31004A 01/31/06 16:26
LFID & Datetime: TA31005A 01/31/06 17:08
LFID & Datetime: TA31006A 01/31/06 17:51
LFID & Datetime: TA31007A 01/31/06 18:33
LFID & Datetime: TA31008A 01/31/06 19:15

COMPOUND	RT OF STANDARDS (MIN)							MEAN RT	RT WINDOW		RTWINDOW WIDTH
	1.0X	2.0X	10.0X	20.0X	100.0X	300.0X	600.0X		FROM	TO	
DIESEL(TOTAL)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
DIESEL(C10-C24)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
DIESEL(C10-C28)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
SURROGATE	0.5X	1.0X	2.0X	3.0X	5.0X	7.0X	11.0X	RT	FROM	TO	WIDTH
BROMOBENZENE	-1	5.267	5.267	5.267	5.275	5.275	5.283	5.272	5.185	5.359	0.087
HEXACOSANE	-1	15.217	15.217	15.217	15.225	15.233	15.233	15.224	14.891	15.557	0.333

DS50A31.MET

5013^{AK} 2/1/06

SECOND SOURCE

INITIAL CALIBRATION VERIFICATION
METHOD M8015

Lab Name : EMAX
Instrument ID : GCT050
GC Column : DB-5
Column size ID : 30MX0.25MM
Mid Conc Init LFID & Datetime: TA31006A 01/31/2006 17:51
Conc Cont LFID & Datetime: TA31011A 01/31/2006 21:21
CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW FROM TO	TRUE CONC	AVERAGE CF	RESULT AREA	CONC	%D	QL	%D LIMITS
DIESEL(TOTAL)	0.000	0.000 0.000	500.0	26500.7	13255810	500.21	0		15
DIESEL(C10-C24)	0.000	0.000 0.000	500.0	26460.6	13131692	496.27	-1		15
DIESEL(C10-C28)	0.000	0.000 0.000	500.0	26478.8	13174570	497.55	-0		15
SURROGATE	MINUTES	FROM TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
BROMOBENZENE	5.275	5.188 5.362	100.0	14214.3	1337667	94.11	-6		15
HEXACOSANE	15.225	14.892 15.558	25.0	28984.5	687118	23.71	-5		15

DS50A31.MET

02/01/15

INITIAL CALIBRATION VERIFICATION
METHOD M8015

Lab Name : EMAX
Instrument ID : GCT050
GC Column : DB-5
Column size ID : 30MX0.25MM
Mid Conc Init LFID & Datetime: TA31007A 01/31/2006 18:33
Conc Cont LFID & Datetime: TA31012A 01/31/2006 22:03
CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW FROM TO		TRUE CONC	AVERAGE CF	RESULT AREA CONC		%D	QL	%D LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
DIESEL(TOTAL)	0.000	0.000	0.000	1500.0	26500.7	40011184	1509.81	1		15
DIESEL(C10-C24)	0.000	0.000	0.000	1500.0	26460.6	39560264	1495.06	-0		15
DIESEL(C10-C28)	0.000	0.000	0.000	1500.0	26478.8	39688336	1498.87	-0		15
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
BROMOBENZENE	5.275	5.188	5.362	140.0	14214.3	1999372	140.66	0		15
HEXACOSANE	15.233	14.900	15.566	35.0	28984.5	989691	34.15	-2		15

DS50A31.MET

501801100

DAILY CALIBRATION

CONTINUE CALIBRATION
METHOD M8015

Lab Name : EMAX
Instrument ID : GCT050
GC Column : DB-5
Column size ID : 30MX0.25MM
Mid Conc Init LFID & Datetime: TA31006A 01/31/2006 17:51
Conc Cont LFID & Datetime: TB09027A 02/10/2006 08:49
CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW FROM TO		TRUE CONC	AVERAGE CF	RESULT AREA CONC		%D	QL	%D LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
DIESEL(TOTAL)	0.000	0.000	0.000	500.0	26500.7	15230425	574.72	15		15
DIESEL(C10-C24)	0.000	0.000	0.000	500.0	26460.6	15082574	570.00	14		15
DIESEL(C10-C28)	0.000	0.000	0.000	500.0	26478.8	15094581	570.06	14		15
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
BROMOBENZENE	5.283	5.196	5.370	100.0	14214.3	1613736	113.53	14		15
HEXACOSANE	15.208	14.875	15.541	25.0	28984.5	703894	24.28	-3		15

CONTINUE CALIBRATION
METHOD M8015

Lab Name : EMAX
Instrument ID : GCT050
GC Column : DB-5
Column size ID : 30MX0.25MM
Mid Conc Init LFID & Datetime: TA31006A 01/31/2006 17:51
Conc Cont LFID & Datetime: TB09039A 02/10/2006 17:35
CONC UNIT : ppm

COMPOUND	RT	RT WINDOW		TRUE	AVERAGE	RESULT		%D	QL	%D
	MINUTES	FROM	TO	CONC	CF	AREA	CONC			LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
DIESEL(TOTAL)	0.000	0.000	0.000	500.0	26500.7	14164827	534.51	7		15
DIESEL(C10-C24)	0.000	0.000	0.000	500.0	26460.6	14044597	530.77	6		15
DIESEL(C10-C28)	0.000	0.000	0.000	500.0	26478.8	14059408	530.97	6		15
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
BROMOBENZENE	5.258	5.171	5.345	100.0	14214.3	1362389	95.85	-4		15
HEXACOSANE	15.217	14.884	15.550	25.0	28984.5	735649	25.38	2		15

CONTINUE CALIBRATION
METHOD M8015

Lab Name : EMAX
Instrument ID : GCT050
GC Column : DB-5
Column size ID : 30MX0.25MM
Mid Conc Init LFID & Datetime: TA31006A 01/31/2006 17:51
Conc Cont LFID & Datetime: TB09053A 02/11/2006 03:22
CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
DIESEL(TOTAL)	0.000	0.000	0.000	500.0	26500.7	13527609	510.46	2		15
DIESEL(C10-C24)	0.000	0.000	0.000	500.0	26460.6	13511240	510.62	2		15
DIESEL(C10-C28)	0.000	0.000	0.000	500.0	26478.8	13527609	510.88	2		15
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
BROMOBENZENE	5.267	5.180	5.354	100.0	14214.3	1288194	90.63	-9		15
HEXACOSANE	15.217	14.884	15.550	25.0	28984.5	682846	23.56	-6		15

ANALYTICAL LOGS

ANALYSIS RUN LOG FOR TPH

SOP ☒ EMAX-M8015D Revision No. 3 ☐ EMAX-LUFTE Revision No. 3 ☐

Book # A50-021

Starting Date: 01/21/00

Time: 14:20

Ending Date: 01/31/00

Time: 23:21

Preparative Batch	Data File Name	Lab Sample ID	DF	Matrix		Notes
				S	W	
	TA31-001	1B50A336				
	002	DS50A31 01				DSL (DMA) SURR
	003	02				bad injection
	004	03				50 40/10
	005	04				100 60/15
	006	05				500 100/25
	007	06				1500 140/35
	008	07				3000 200/55
	009	01				5
	010	02				10 20/15
	011	1B50A31 01				500 100/25 ; DSL 100
	012	02				1500 140/35 ↓
	013	HC-CHAIN				
	014	MeCl2				

INITIAL CALIBRATION REFERENCE		
Instrument No:	ID	Date
50	DS50A31	01/31/00
	Motor oil	
	JP 5	

Standards		
Name	ID	Conc. (mg/L)
CH ₂ Cl ₂	45257	pure
DCC		
DSL 100L	5536-07-04-2	5.3000
+ SURR		2015.2295
DSL 100	5536-07-03-3	9000

Electronic Data Archival	
Location	Date
<input type="checkbox"/> E2C 1 Diesel	
<input type="checkbox"/>	

Comments: _____

Analyzed By: JD

Disposed on: 02/01/00 By: JD

ANALYTICAL BATCH

n/a

ANALYSIS RUN LOG FOR TPH

SOP ☒ EMAX-M8015D Revision No. 3 ☐ EMAX-LUFTE Revision No. 3 ☐ Book # A50-023

Starting Date: 02.11.06 Time: 01:59 Ending Date: 02.11.06 Time: 18:01

Preparative Batch	Data File Name	Lab Sample ID	DF	Matrix		Notes	INITIAL CALIBRATION REFERENCE		
				S	W		Instrument No:	ID	Date
D5B0225	TB09.051	06B038-22	1	✓					50
	'052	06B040-09	✓	✓		Diesel	0500A31		27/1/06
	'059	0250A31387				Motor oil			
	'054	0250A31388				JP 5/30/00	JP00A00A		01/05/06
D5B0225	'055	06B040-01	1	✓					
	'056	06B039-21							
	'057	06B040-08							
	'058	06							
	'059	07							
	'060	10							
	'061	03							
	'062	04							
	'063	04M							
	'064	NO DATA							
D5B0225	'065	06B040-045	1	✓					
	'066	0250A31389							
	'067	0250A31390							
	'068	1300B390							
D5B0225	'069	06B040-02	1	✓					
	'070	06B038-21							
	'071	06B040-05							
D5B0185	'072	D5B0185L							
	'073	B							
	'074	06B039-06							
	'075	07							

Standards		
Name	ID	Conc. (mg/L)
CH ₂ Cl ₂	48257	
DCC DCL	0530-07-02-1	100
DE/0040DCE	0530-07-05-2	500

Electronic Data Archival		
Location	Date	
<input type="checkbox"/> EZC_1_Diesel		
<input type="checkbox"/>		

Comments:

Analyzed By: 02.11.06 By: 02

Disposed on:



ANALYSIS RUN LOG FOR TPH

Book # A50-021

SOP ☒ EMAX-M8015D Revision No. 3 ☐ EMAX-LUFTE Revision No. 3 ☐

Starting Date: 03.09.08 Time: 14:49

Ending Date: 02.10.08

Time: 07:26

Preparative Batch		Data File Name	Lab Sample ID	DF	Matrix	Notes
					S W	
		TR07-001	LOS CHK			
		022	JPS/5030 CHK			
		023	DCL DCC CHK			
		004	1B50B379			
		005	0050A3379			
		006	0500A3379			
		007	06B043-01	1		
		008	02			
		009	03			
		010	04			
		011	06B098-10			
		012	12			
		013	13			
		014	19			
		015	04			
		016	06			
		017	0050A3379			
		018	0500A3379			
		019	06B098-11	1		
		020	11M			
		021	15			
		022	16			
		023	18			
		024	14			
		025	15			

Instrument No:		50
INITIAL CALIBRATION REFERENCE		
Diesel	ID	Date
Motor oil	0850A31	01/3/08
JP 5 / 5030	0500A3379	01/05/08
Standards		
Name	ID	Conc. (mg/L)
CH ₂ Cl ₂	45027	pure
DCC ECL	5531-07-06-1	500
JPS/5030CC	5531-07-05-2	500
Electronic Data Archival		
Location		Date
<input type="checkbox"/> EZC_1_Diesel		
<input type="checkbox"/>		
Comments:		
Analyzed By: <u>ggo</u>		
Disposed on: <u>02.10.08</u> By: <u>ggo</u>		

ANALYTICAL BATCH (02.10.08) 163

ANALYSIS RUN LOG FOR TPH

SOP ☒ EMAX-M8015D Revision No. 3 ☐ EMAX-LUFTE Revision No. 3 ☐ Book # A50-021

Starting Date: 08/10/00 Time: 08:08 Ending Date: 08/11/00 Time: 01:17

Preparative Batch	Data File Name	Lab Sample ID	DF	Matrix		Notes	INITIAL CALIBRATION REFERENCE		
				S	W		Instrument No.	ID	Date
DSB017S	1809-026	06B038-17	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Diesel	DSB031	01/3/00
	027	CP530A31383				DSO	Motor oil		
	028	CJ530A05M1384				JPS/DSO; 300 ppm	JP 5/DSO	J53009M	01-09-00
DSB017S	029	1B500384							
	030	06B038-04	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	031	08		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	032	09		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	033	20		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
DSB023W	034	DSB023WL		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	035	C		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		CH ₂ Cl ₂	45257	pure
	036	B		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		DCC DSL	pls. refer to p. 98	
	037	SPB0015B		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-FR; low bromobenzene rec.	JPS/DSO DCC	"	
	038	TEST		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	039	CS500A31385				DSO			
	040	CJ530A05M1386				JPS/DSO; 300 ppm			
DSB023W	041	DSB023W10	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	042	06A173A-01		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	043	06		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	044	09		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
DSB017S	045	06B038-16W		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	046	14W		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	047	15W		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	048	17W		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
DSB025	049	DSB025B		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	050	L		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				

Standards		Electronic Data Archival	
Name	ID	Location	Date
CH ₂ Cl ₂	45257		
DCC DSL	pls. refer to p. 98		
JPS/DSO DCC	"		

Comments: _____

Analyzed By: go Disposed on: 02-11-00 By: go

EXTRACTION LOGS

EXTRACTION LOG FOR TPH

SOP ☐ EMAX-3550 Rev. No.1 ☐ EMAX-3520 Rev. No.1 ☐ EMAX-LUFT E Rev. No.1 ☐ EMAX-3540 Rev. No.1 ☐ EMAX-3510 Rev. No.1Matrix: WATER SPLP Extract Start Date: 2/9/06 End Date: 2/10/06 Time: 9:00 Book # EDS-026Time: 15:00

Sample Prep ID	Lab Sample ID	Sonicator Number	Sample Amount (g ml)	Extract Volume (ml)	Silica Gel Clean-up	Notes	Standards	ID	Amount Added (ml)
01	DSB023 - WB	N/A	1000	10			Surrogate	UR3C-07-04-1	1.0
02	- WL		1000	10			LCS/MS	UR3C-07-04-3	1.0
03	- WC		1000	10			Reagent		
04	SPB001 - SB		500	5			CH ₂ Cl ₂	45257	
05	06A173 - 01		500	5			Na ₂ SO ₄	45065	
06	- 06		500	5			HCl	45105	
07	- 09		500	5			Silica Sand		
08	06B048 - 02		990	10			TUNING		
09	- 02M		980	10			Sonicator #	Reading	
10	- 02 S		1030	10				N/A	
11	- 05		980	10					
12	06B054 - 11		1050	10					
13	- 12		1060	10					
14	06B057 - 01		1060	10				Concentrator Water Bath Temp. (C)	
15	- 02		1050	10			1	35	35
16	06B062 - 01		1020	10			2	35	35
17	- 03		1060	10			3	35	35
18	- 04		1060	10			4		
19	06B064 - 01		1060	10			5	35	35
20							6		
21	2/10/06						Comments: Test thermometer = T ₁		
22									
23									
24									
25									
26									
27									

PREPARATION BATCH - DSB023WPrepared By: JM Standard Added By: JMWitnessed By: JR Checked By: MLExtract Received by: go 02.10.06 Extract Location: SE06-14

Disposal Date: Disposed By:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 31st St Tempe, CA 91330

5027

EXTRACTION LOG FOR SPLP

Page 93

Method ☒ EMAX-1312 ☐ Matrix Soil Start Date 2/18/06 Time 17:55 End Date 2/19/06 Time 12:00 Book # ESP-002

Sample Prep ID	Lab Sample ID	Sample pH	Sample Amount (gm)	SPLP Fluid Required	Extraction Solution (ml)	Extract pH	% Solid in Liquid Phase	Notes
*01	SPB001 - SB	—	—	2	2000	—	N/A	
*02	06A173 - 01	—	100.02	2	2000	—	↓	
*03	↓ - 06	—	100.03	2	2000	—		
*04	↓ - 09	—	100.03	2	2000	—		
*05	—	—	—	—	—	—	—	
*06	—	—	—	—	—	—	—	
*07	—	—	—	—	—	—	—	
*08	—	—	—	—	—	—	—	
*09	—	—	—	—	—	—	—	
*10	—	—	—	—	—	—	—	
*11	—	—	—	—	—	—	—	
*12	—	—	—	—	—	—	—	
*13	—	—	—	—	—	—	—	
*14	—	—	—	—	—	—	—	
*15	—	—	—	—	—	—	—	
*16	—	—	—	—	—	—	—	
*17	—	—	—	—	—	—	—	
*18	—	—	—	—	—	—	—	
*19	—	—	—	—	—	—	—	
*20	—	—	—	—	—	—	—	
*21	—	—	—	—	—	—	—	
*22	—	—	—	—	—	—	—	
*23	—	—	—	—	—	—	—	
*24	—	—	—	—	—	—	—	
*25	—	—	—	—	—	—	—	
*26	—	—	—	—	—	—	—	

PREPARATION BATCH * SPB001S

Calibration of pH meter		
Buffer ID	Value	Reading
SWFA-06-229	7	7.00
SWFA-06-237	4	4.01
SPLP Solution #2		
ID	SPIB-01-329	
pH	5.03	
Exp. Date	1/5/07	

Rotary Agitator #	rpm
1	30

Room Temperature (°C)		
High	Low	Thermostat Setting
23.2	22.5	—
Criteria 23 ± 2		

Comments:

Prepared By: YK
 Checked By: ML
 Extract Location: SE06

5028

**BACKFILL MATERIAL ANALYTICAL REPORTS
AND CHAIN-OF-CUSTODY DOCUMENTATION**



CHAIN-OF-CUSTODY RECORD

DATE	TIME	BY	REMARKS
12/15/2011	1445	06A078	

San Diego, CA 92101 (619) 234-8696

[illegible]

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

COC Inspection		
<input checked="" type="checkbox"/> Client Name	<input checked="" type="checkbox"/> Sampler Name	<input checked="" type="checkbox"/> Sampling Date/Time/Location
<input checked="" type="checkbox"/> Address	<input checked="" type="checkbox"/> Courier Signature/Date/Time	<input checked="" type="checkbox"/> Analysis Required
<input checked="" type="checkbox"/> Client PM/FC	<input checked="" type="checkbox"/> TAT	<input checked="" type="checkbox"/> Matrix
<input checked="" type="checkbox"/> Tel #/Fax #	<input checked="" type="checkbox"/> Sample ID	<input checked="" type="checkbox"/> Preservative (if any)
Safety Issues <input checked="" type="checkbox"/> None	<input type="checkbox"/> High Concentrations expected	<input type="checkbox"/> Superfund Site Samples
Comments: <input type="checkbox"/> Rad Screening Required		

PM 6:00
Date 1/17/06

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 14131

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 06A078

5000

CASE NARRATIVE

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 14131
SDG: 06A078

METHOD 3550B/8015B TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Two (2) soil samples were received on 01/17/06 for Total Petroleum Hydrocarbons by Extraction analysis by Method 3520C/8015B in accordance with SW846 3RD Edition.

1. Holding Time

Analytical holding time was met. Extraction was performed and completed on 01/18/06.

2. Calibration

Initial calibration was seven points for Diesel. %RSDs were within 20%. Continuing calibrations were carried out at 12-hour intervals and all recoveries were within 85-115%.

3. Method Blank

Method blank was free of contamination at half of the reporting limit.

4. Surrogate Recovery

All recoveries were within QC limits.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No sample was designated for MS/MSD.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met. Sample results were quantitated from C10 to C24 using Diesel (C10-C24) calibration factor.

Sample A078-02 displayed motor oil-like fuel pattern.

SAMPLE RESULTS

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
Client      : SES-TECH                      Date Collected: 01/17/06
Project     : CAMP PENDLETON, UST SITE 14131 Date Received: 01/17/06
Batch No.   : 06A078                       Date Extracted: 01/18/06 10:45
Sample ID   : 0004-072                     Date Analyzed: 01/20/06 20:42 ✓
Lab Samp ID : A078-01                      Dilution Factor: 1
Lab File ID : TA19045A                     Matrix       : SOIL
Ext Btch ID : DSA016S                      % Moisture    : 10.7
Calib. Ref. : TA19039A                     Instrument ID : GCT050
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	11	5.6

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	71	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

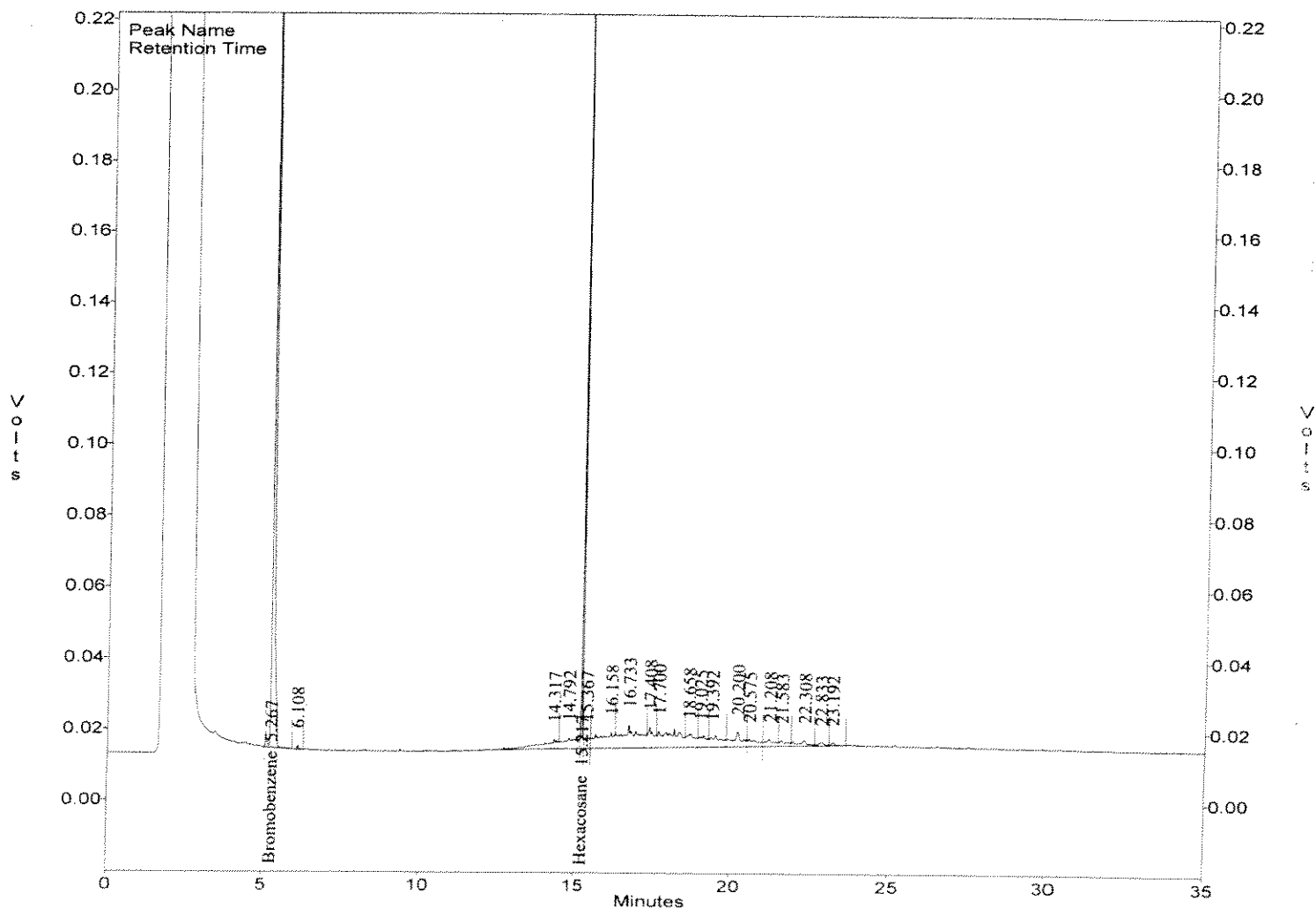
METHOD 8015 by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\ta19\ta19.045
Method : c:\ezchrom\methods\ds50a19.met
Sample ID : 06A078-01
Acquired : Jan 20, 2006 20:42:52
Printed : Jan 23, 2006 09:45:22
User : JANE

Channel A Results

#	Peak Name	Ret.Time (Min)	Area	Ave. CF	ESTD Conc. (ppm)
1	Bromobenzene	5.267	1140070	19748.8	57.7
5	Hexacosane	15.217	694679	38991.6	17.8
G1	Diesel (TOTAL)		1324404	25335.2	52.3
G2	Diesel (C10-C24)		112783	25208.3	4.5
G3	Diesel (C10-C28)		359154	25218.1	14.2

c:\ezchrom\chrom\ta19\ta19.045 -- Channel A



5005

9-23-06

QC SUMMARIES

METHOD 3550B/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```
=====
Client      : SES-TECH                      Date Collected: NA
Project     : CAMP PENDLETON, UST SITE 14131 Date Received: 01/18/06
Batch No.   : 06A078                       Date Extracted: 01/18/06 10:45
Sample ID   : MBLK1S                       Date Analyzed: 01/20/06 20:01
Lab Samp ID : DSA016SB                     Dilution Factor: 1
Lab File ID : TA19044A                     Matrix          : SOIL
Ext Btch ID : DSA016S                      % Moisture       : NA
Calib. Ref.: TA19039A                     Instrument ID    : GCT050
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
DIESEL	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
HEXACOSANE	71	65-135

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 14131
BATCH NO.: 06A078
METHOD: METHOD 3550B/8015B

MATRIX: SOIL
DILUTION FACTOR: 1 1 1 % MOISTURE: NA
SAMPLE ID: MBLK1S
LAB SAMP ID: DSA016SB DSA016SL DSA016SC
LAB FILE ID: TA19044A TA19042A TA19043A
DATE EXTRACTED: 01/18/0610:45 01/18/0610:45 01/18/0610:45 DATE COLLECTED: NA
DATE ANALYZED: 01/20/0620:01 01/20/0618:37 01/20/0619:19 DATE RECEIVED: 01/18/06
PREP. BATCH: DSA016S DSA016S DSA016S
CALIB. REF: TA19039A TA19039A TA19039A

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	ND	500	529	106	500	548	110	4	65-135	35

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	QC LIMIT (%)
Hexacosane	25	16.9	68	25	18	72	65-135

LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 14131

METALS BY ICP/MERCURY

SDG#: 06A078

7000

CASE NARRATIVE

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 14131
SDG: 06A078

METHOD 3050B/6010B METALS BY ICP

Two (2) soil samples were received on 01/17/06 for Metals analysis by Method 3050B/6010B in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at half of the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample A078-01 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : SES-TECH                      Date Collected: 01/17/06
Project     : CAMP PENDLETON, UST SITE 14131 Date Received: 01/17/06
SDG NO.     : 06A078                      Date Extracted: 01/18/06 09:30
Sample ID   : 0004-072                   Date Analyzed: 01/19/06 19:48
Lab Samp ID : A078-01                    Dilution Factor: 1
Lab File ID : I73A020015                 Matrix          : SOIL
Ext Btch ID : IPA026S                    % Moisture       : 10.7
Calib. Ref. : I73A020009                 Instrument ID    : EMAXT173
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	ND	11.2	2.24
Arsenic	2.07	1.12	.448
Barium	92.2	1.12	.224
Beryllium	.402J	1.12	.224
Cadmium	.225J	1.12	.112
Chromium	23.5	1.12	.224
Cobalt	5.78	1.12	.224
Copper	17.7	1.12	.224
Lead	7.39	1.12	.224
Molybdenum	1.15J	5.6	.56
Nickel	16.1	2.24	.224
Selenium	.784J	1.12	.56
Silver	.624J	1.12	.28
Thallium	7.23	1.12	.56
Vanadium	33.1	1.12	.56
Zinc	49.2	1.12	.56

7003

METHOD 3050B/6010B
METALS BY ICP

Client : SES-TECH	Date Collected: NA
Project : CAMP PENDLETON, UST SITE 14131	Date Received: 01/18/06
SDG NO. : 06A078	Date Extracted: 01/18/06 09:30
Sample ID: MBLK1S	Date Analyzed: 01/20/06 14:15
Lab Samp ID: IPA026SB	Dilution Factor: 1
Lab File ID: I73A021012	Matrix : SOIL
Ext Btch ID: IPA026S	% Moisture : NA
Calib. Ref.: I73A021009	Instrument ID : EMAXTI73

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	ND	10	.2
Arsenic	ND	1	.4
Barium	ND	1	.2
Beryllium	ND	1	.2
Cadmium	ND	1	.1
Chromium	ND	1	.2
Cobalt	ND	1	.2
Copper	ND	1	.2
Lead	ND	1	.2
Molybdenum	ND	5	.5
Nickel	ND	2	.2
Selenium	ND	1	.5
Silver	ND	1	.25
Thallium	ND	1	.5
Vanadium	ND	1	.5
Zinc	ND	1	.5

7005

8

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 14131
SDG NO.: 06A078
METHOD: METHOD 3050B/6010B

MATRIX: SOIL
DILT N FACTR: 1 1 1 % MOISTURE: NA
SAMPLE ID: MBLK1S
CONTROL NO.: IPA026SB IPA026SL IPA026SC
LAB FILE ID: I73A021012 I73A020012 I73A020013
DATE TIME EXTRCTD: 01/18/0609:30 01/18/0609:30 01/18/0609:30 DATE COLLECTED: NA
DATE TIME ANALYZD: 01/20/0614:15 01/19/0619:27 01/19/0619:34 DATE RECEIVED: 01/18/06
PREP. BATCH: IPA026S IPA026S IPA026S
CALIB. REF: I73A021009 I73A020009 I73A020009

ACCESSION:

PARAMETER	BLNK RSLT mg/kg	SPIKE AMT mg/kg	BS RSLT mg/kg	BS % REC	SPIKE AMT mg/kg	BSD RSLT mg/kg	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	500	482	96	500	481	96	0	75-125	25
Arsenic	ND	100	98.6	99	100	98.4	98	0	75-125	25
Barium	ND	100	94.6	95	100	94.4	94	0	75-125	25
Beryllium	ND	100	99.8	100	100	99.9	100	0	75-125	25
Cadmium	ND	100	93.1	93	100	93.2	93	0	75-125	25
Chromium	ND	100	97.7	98	100	97.7	98	0	75-125	25
Cobalt	ND	100	94.3	94	100	94.4	94	0	75-125	25
Copper	ND	100	101	101	100	101	101	0	75-125	25
Lead	ND	100	95.3	95	100	95.6	96	0	75-125	25
Molybdenum	ND	100	98	98	100	98.1	98	0	75-125	25
Nickel	ND	100	93.4	93	100	93.6	94	0	75-125	25
Selenium	ND	100	92.7	93	100	93.2	93	0	75-125	25
Silver	ND	100	97.4	97	100	97.2	97	0	75-125	25
Thallium	ND	100	97.3	97	100	97.1	97	0	75-125	25
Vanadium	ND	100	99.7	100	100	99.7	100	0	75-125	25
Zinc	ND	100	96.8	97	100	96.9	97	0	75-125	25

7006

8

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 14131
BATCH NO.: 06A078
METHOD: METHOD 3050B/6010B

MATRIX: SOIL % MOISTURE: 10.7
DILUTION FACTOR: 1 5
SAMPLE ID: 0004-072 0004-072DL
EMAX SAMP ID: A078-01 A078-01J
LAB FILE ID: I73A020015 I73A020016
DATE EXTRACTED: 01/18/0609:30 01/18/0609:30 DATE COLLECTED: 01/17/06
DATE ANALYZED: 01/19/0619:48 01/19/0619:54 DATE RECEIVED: 01/17/06
PREP. BATCH: IPA026S IPA026S
CALIB. REF: I73A020009 I73A020009

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SERIAL DIL RSLT (mg/kg)	DIF RSLT %	QC LIMIT (%)
Antimony	ND	ND	0	10
Arsenic	2.07	2.79J	NA	10
Barium	92.2	96.9	5	10
Beryllium	.402J	ND	NA	10
Cadmium	.225J	ND	NA	10
Chromium	23.5	24.5	4	10
Cobalt	5.78	6.11	6	10
Copper	17.7	16.9	5	10
Lead	7.39	8.22	11*	10
Molybdenum	1.15J	ND	NA	10
Nickel	16.1	17	6	10
Selenium	.784J	3.65J	NA	10
Silver	.624J	ND	NA	10
Thallium	7.23	8.82	22*	10
Vanadium	33.1	33.9	2	10
Zinc	49.2	54.3	10	10

7007

8

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 14131
SDG NO.: 06A078
METHOD: METHOD 3050B/6010B

MATRIX: SOIL % MOISTURE: 10.7
DILTN FACTR: 1
SAMPLE ID: 0004-072
CONTROL NO.: A078-01 A078-01A
LAB FILE ID: 173A020015 173A020014
DATE TIME EXTRACTED: 01/18/0609:30 01/18/0609:30 DATE COLLECTED: 01/17/06
DATE TIME ANALYZED: 01/19/0619:48 01/19/0619:40 DATE RECEIVED: 01/17/06
PREP. BATCH: IPA026S IPA026S
CALIB. REF: 173A020009 173A020009

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SPIKE AMT (mg/kg)	AS RSLT (mg/kg)	AS % REC	QC LIMIT (%)
Antimony	ND	560	505	90	75-125
Arsenic	2.07	112	106	93	75-125
Barium	92.2	112	189	86	75-125
Beryllium	.402J	112	105	94	75-125
Cadmium	.225J	112	97.7	87	75-125
Chromium	23.5	112	125	91	75-125
Cobalt	5.78	112	105	88	75-125
Copper	17.7	112	127	97	75-125
Lead	7.39	112	108	90	75-125
Molybdenum	1.15J	112	104	92	75-125
Nickel	16.1	112	113	87	75-125
Selenium	.784J	112	99.5	88	75-125
Silver	.624J	112	103	91	75-125
Thallium	7.23	112	109	91	75-125
Vanadium	33.1	112	137	93	75-125
Zinc	49.2	112	149	89	75-125

7008

8

CASE NARRATIVE

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 14131
SDG: 06A078

METHOD 7471A MERCURY BY COLD VAPOR

Two (2) soil samples were received on 01/17/06 for Mercury analysis by Method 7471A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at half of the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample A040-01 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

MS/MSD sample was not designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

LAB CHRONICLE
MERCURY BY COLD VAPOR

Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 14131
SDG NO. : 06A078
Instrument ID : TI047

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis Date/Time	Extraction Date/Time	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1S	HGA012SB	1	NA	01/19/0614:13	01/18/0616:00	M47A012010	M47A012008	HGA012S	Method Blank
LCST1S	HGA012SL	1	NA	01/19/0614:15	01/18/0616:00	M47A012011	M47A012008	HGA012S	Lab Control Sample (LCS)
LCD1S	HGA012SC	1	NA	01/19/0614:17	01/18/0616:00	M47A012012	M47A012008	HGA012S	LCS Duplicate
S039AS	A040-01A	1	17.4	01/19/0614:19	01/18/0616:00	M47A012013	M47A012008	HGA012S	Analytical Spike Sample
S039	A040-01	1	17.4	01/19/0614:22	01/18/0616:00	M47A012014	M47A012008	HGA012S	Field Sample
S039DL	A040-01J	5	17.4	01/19/0614:24	01/18/0616:00	M47A012015	M47A012008	HGA012S	Diluted Sample
0004-072	A078-01	1	10.7	01/19/0615:12	01/18/0616:00	M47A012038	M47A012032	HGA012S	Field Sample

FN - Filename
% Moist - Percent Moisture

7020
8

METHOD 7471A
MERCURY BY COLD VAPOR

Client : SES-TECH

Project : CAMP PENDLETON, UST SITE 14131

Batch No. : 06A078

Matrix : SOIL
Instrument ID : T1047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DLF	MOIST	RL (mg/kg)	MDL (mg/kg)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1S	HGA012SB	ND	1	NA	.1	.033	01/19/0614:13	01/18/0616:00	M47A012010	M47A012008	HGA012S	NA	01/18/06
LCS1S	HGA012SL	.832	1	NA	.1	.033	01/19/0614:15	01/18/0616:00	M47A012011	M47A012008	HGA012S	NA	01/18/06
LCD1S	HGA012SC	.813	1	NA	.1	.033	01/19/0614:17	01/18/0616:00	M47A012012	M47A012008	HGA012S	NA	01/18/06
0004-072	A078-01	ND	1	10.7	.112	.037	01/19/0615:12	01/18/0616:00	M47A012038	M47A012032	HGA012S	01/17/06	01/17/06

7021

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, UST SITE 14131
SDG NO.: 06A078
METHOD: METHOD 7471A

MATRIX: SOIL
DILTN FACTR: 1
SAMPLE ID: MBLK1S
CONTROL NO.: HGA012SB
LAB FILE ID: M47A012010
DATE TIME EXTRCTD: 01/18/0616:00
DATE TIME ANALYZD: 01/19/0614:13
PREP. BATCH: HGA012S
CALIB. REF: M47A012008

% MOISTURE: NA

DATE COLLECTED: NA
DATE RECEIVED: 01/18/06

PARAMETER	BLNK RSLT	SPIKE AMT	BS RSLT	BS	SPIKE AMT	BSD RSLT	BSD	RPD	QC LIMIT	MAX RPD
mg/kg	mg/kg	mg/kg	mg/kg	% REC	mg/kg	mg/kg	% REC	%	%	%
Mercury	ND	.833	.832	100	.833	.813	98	2	75-125	25

7022

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: SES-TECH

PROJECT: CAMP PENDLETON, UST SITE 14131

BATCH NO.: 06A078

METHOD: METHOD 7471A

MATRIX: SOIL
DILUTION FACTOR: 1 5
% MOISTURE: 17.4

SAMPLE ID: S039 S039DL

EMAX SAMP ID: A040-01 A040-01J

LAB FILE ID: M47A012014 M47A012015

DATE EXTRACTED: 01/18/0616:00 01/18/0616:00

DATE ANALYZED: 01/19/0614:22 01/19/0614:24

PREP. BATCH: HGA012S

CALIB. REF: M47A012008 M47A012008

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SERIAL DIL RSLT (mg/kg)	DIF RSLT %	QC LIMIT (%)
Mercury	ND	ND	0	10

7023

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: SES-TECH

PROJECT: CAMP PENDLETON, UST SITE 14131

SDG NO.: 06A078

METHOD: METHOD 7471A

MATRIX: SOIL
DILTN FACTR: 1
SAMPLE ID: S039
CONTROL NO.: A040-01
LAB FILE ID: M47A012014
DATE TIME EXTRCTD: 01/18/0616:00
DATE TIME ANALYZD: 01/19/0614:22
PREP. BATCH: HGA012S
CALIB. REF: M47A012008

% MOISTURE: 17.4

DATE COLLECTED: 01/09/06
DATE RECEIVED: 01/10/06

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SPIKE AMT (mg/kg)	AS RSLT (mg/kg)	AS % REC	QC LIMIT (%)
Mercury	ND	.401	.353	88	85-115

7024

LABORATORY REPORT FOR

SES-TECH

CAMP PENDLETON, UST SITE 14131

METHOD 9045
pH

SDG#: 06A078

8000

CASE NARRATIVE

CLIENT: SES-TECH
PROJECT: CAMP PENDLETON, USST SITE 14131
SDG: 06A078

METHOD 9045 pH

Two (2) soil samples were received on 01/17/06 for pH analysis by Method 9045 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Duplicate

Sample A078-02 was analyzed for duplicate. %RPD was within QC limit.

3. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 9045
PH

Client : SES-TECH
Project : CAMP PENDLETON, UST SITE 14131
Batch No. : 06A078
Matrix : SOIL
Instrument ID : 153

SAMPLE ID	EMAX	RESULTS (pHUnit)	DLF	MOIST(pHUnit)	RL	MDL	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
0004-072	A078-01	8.11	1	NA	NA	NA	01/17/06 16:35	01/17/06 16:00	PHA004S-02	NA	PHA004S	01/17/06	01/17/06

**AmeriSci Richmond**

13635 GENITO ROAD
MIDLOTHIAN, VA 23112
TEL: (804) 763-1200 • FAX: (804) 763-1800

PLM Bulk Asbestos Report

EMAX Laboratories, Inc.
Attn: Richard Beauvil
1835 205th Street
Torrance, CA 90501

Date Received 01/16/06

Date Examined 01/17/06

RE SES - TECH

AmeriSci Job No. 106011328

P.O. # SES - TECH

Page 1 of 1

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
0004-070	106011328-01	No	NAD ¹ (by 1000 pt ct)
Location:			
Description: Tan, Heterogeneous, Non-Fibrous, Soil			
Asbestos Types:			
Other Material: Non-fibrous 100 %			
0004-071	106011328-02	No	NAD ¹ (by 1000 pt ct)
Location:			
Description: Brown, Heterogeneous, Non-Fibrous, Soil			
Asbestos Types:			
Other Material: Non-fibrous 100 %			
Comment: Presence of Gray and Tan Cement-like Materials in Sample, which contain No Asbestos.			

Reporting Notes:

(1) Sample analyzed by California Air Resources Board - Method 435 with 1000 pt ct analysis

Analyzed by: Gordon T. Saleeby

Date

Jan 17, 2006

*NAD = no asbestos detected, Detection Limit <1%, Reporting Limits: CVES = 1%, 400 Pt Ct = 0.25%, 1000 Pt Ct = 0.1%;

"Present" or NVA = "No Visible Asbestos" are observations made during a qualitative analysis; NA = not analyzed; NA/PS = not analyzed / positive stop; PLM Bulk Asbestos Analysis by EPA 600/M4-82-020 per 40 CFR 763 (NVLAP Lab #101904-0) and ELAP PLM Analysis Protocol 198.1 for New York friable samples (198.6 for NOB samples)(NYSDOH ELAP Lab # 10984); CA ELAP Lab # 2508; Note: PLM is not consistently reliable in detecting asbestos in floor coverings and similar NOB materials. TEM is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing in New York State (also see EPA Advisory for floor tile, FR 59, 146, 38970, 8/1/94). NIST Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the laboratory. This PLM report relates ONLY to the items tested.

Reviewed By: _____

CHAIN OF CUSTODY

106011328



LABORATORIES, INC.

1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

EMAX CONTROL NO. *

PROJECT CODE:

CLIENT

SES-TECH

PROJECT

Camp Pendleton 457 Sta 14131

COORDINATOR

FAX EMAIL

SEND REPORT TO

Richard Beavril

COMPANY

ADDRESS

EMAX PM

SAMPLE ID

CLIENT

LOCATION DATE TIME

0004-070
0004-071

1/12/06 11:35

CONTAINER

NO. SIZE TYPE

802 500 SS
802 500 SS

MATRIX

QC

SS

PRESERVATIVE CODE

ASBESTOS

X

COMMENTS

D6A058-01
02

TAT

☐ Rush hrs.

☒ Rush 48 days

☐ 7 days

☐ 14 days

☐ 21 days

☐ 30 days

☐ days

Instructions

Please email results to rbeavril@emaxlabs.com

Cooler #

Temp. (°C)

Sample #s

Amesic Richmond

SAMPLER

RELINQUISHED BY

Date

Time

COURIER/AIRBILL

RECEIVED BY

Bill Spauld

1/18/06 9:00

13635 Genito Rd
Petaluma, CA 94952

NOTE: Turn around time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepancies resolved after 1500 hrs. TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associated with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as not hazardous shall be \$5.00 per sample. Hazardous samples to be disposed of at the client's expense unless directed in writing otherwise.

RECEIVED

JAN 16 2006

BY

PL

APPENDIX D

EXCAVATION COMPACTION REPORT



March 1, 2006
Project No. 105796001

Mr. Mark Cutler
Sealaska Environmental Services, LLC
603 Seagaze Drive, #542
Oceanside, California 92054

Subject: Summary of Compaction Testing
Buildings 1441, 14131, and 14137
MCB Camp Pendleton
San Diego County, California
Contract N68711-04-D-1104: P.O. 058318

Dear Mr. Cutler:

In accordance with your request, Ninyo & Moore has provided geotechnical observation and testing services during the backfill operations near Buildings 1441, 14131, and 14137 on Marine Corps Base (MCB) Camp Pendleton, located in San Diego County, California. The project sites are located within Area 14 of MCB Camp Pendleton and are situated approximately 1 mile east of Vandegrift Boulevard between 15th Street and 19th Street. The purpose of our services was to observe, document, and test the materials used during the backfill operations that were conducted by the contractor. We have performed field and laboratory tests on representative soil samples to characterize the backfill soils and to evaluate the relative compaction. Our findings and conclusions are presented herein.

BACKFILL OPERATIONS

Backfill operations observed and tested by our firm were conducted between the dates of January 31, 2006 and February 7, 2006. Our field technicians provided compaction testing on an on-call basis during the placement of compacted backfill. During backfill operations, trench excavations ranged from approximately 12 feet to 16 feet in depth. Backfill of the excavations was conducted utilizing a front-end loader and a track-hoe with a sheep's-foot attachment. In general, the loader placed and processed the backfill soil and the track-hoe applied the compaction effort. In accordance with the

project documents, the means and methods utilized to place and compact the backfill soils at depths greater than 5 feet were visually observed by our technician but we did not perform field density tests. The project documents indicated specified relative compaction for the uppermost 5 feet was a range of 90 to 95 percent for each layer with an average of 95 percent relative compaction.

FIELD AND LABORATORY TESTING

At your request, our field technicians were on-site to perform in-place field density tests. The tests were performed in general accordance with American Society of Testing and Materials (ASTM) test method D 2922 and D 3017 (Nuclear Gauge Method) and D 1556 (Sand Cone Testing). The summary of the results of our field density tests, the approximate test depths, and the associated building locations are presented in Table 1.

Laboratory testing was performed on a representative sample of the soil used during the earthwork operations to evaluate the modified Proctor dry density/optimum moisture content and expansion index. Laboratory testing of the modified Proctor dry density and optimum moisture content was conducted in general accordance with ASTM D 1557, and the results are presented in Table 2, Modified Proctor Density Test Results. Laboratory testing of the expansion index was conducted in general accordance with UBC 18-2, and the results are presented in Table 3, Expansion Index Test Results.

SUMMARY

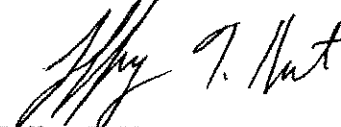
Our technicians were on-site to observe the backfill operations. The field density tests performed during these operations indicated the specified relative compaction. Based on our observations and the results of our field and laboratory tests, it is our opinion that the backfill operations were performed in general accordance with the current standard of practice and care, and the project scope of work.

LIMITATIONS


The geotechnical services outlined in this report have been conducted in accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in this area. No warranty, expressed or implied, is made regarding the observations and conclusions expressed in this report. The reported test results represent the relative compaction and moisture content at the locations tested. It is important to note that the precision of field density tests and the modified Proctor dry density tests is not exact and variations should be expected. The reported locations and depths of the density tests are estimated based on correlations with the site surroundings. Further accuracy is not implied.

We appreciate the opportunity to be of service on this project. Should you have any questions related to this report, please contact the undersigned.

Sincerely,
NINYO & MOORE


Jeffrey T. Kent, P.E.
Project Engineer




Mark Cuthbert, P.E.
Principal Engineer

DLP/JTK/MC/ag/gg

Distribution: (2) Addressee

Attachments: Table 1 – Summary of Field Density Tests
Table 2 – Modified Proctor Density Test Results
Table 3 – Expansion Index Test Results

TABLE 1

SUMMARY OF FIELD DENSITY TESTS

PROJECT NO. 105796001

TEST OF: COMPACTED FILL

Test No.	Test of	Date	Test Location	Depth (ft)	Soil Type No.	Wet Density (pcf)	Field Moisture (%)	Dry Density (pcf)	Proctor Density (pcf)	Optimum Moisture Content (%)	Relative Compaction (%)	Specified Relative Compaction (%)	Remarks
1#	CF	2/1/06	Building 1441	5.0	1	127.0	9.3	116.2	122.0	11.5	95	90 - 95	
2*	CF	2/1/06	Building 1441	5.0	1	124.6	8.5	114.8	122.0	11.5	94	90 - 95	
3#	CF	2/1/06	Building 1441	4.0	1	131.9	12.2	117.6	122.0	11.5	96	90 - 95	
4#	CF	2/1/06	Building 1441	3.0	1	133.1	10.2	120.8	122.0	11.5	99	90 - 95	
5#	CF	2/1/06	Building 1441	2.0	1	130.9	9.1	120.0	122.0	11.5	98	90 - 95	
6#	CF	2/1/06	Building 1441	1.0	1	124.2	9.6	113.3	122.0	11.5	93	90 - 95	
7#	CF	2/1/06	Building 1441	1.0	1	129.3	11.2	116.3	122.0	11.5	95	90 - 95	
8#	CF	2/1/06	Building 1441	0.0	1	125.8	9.9	114.5	122.0	11.5	94	90 - 95	
9#	CF	2/1/06	Building 1441	0.0	1	129.6	10.9	116.9	122.0	11.5	96	90 - 95	
10#	CF	2/3/06	Building 14137	5.0	1	124.0	9.9	112.8	122.0	11.5	92	90 - 95	
11#	CF	2/3/06	Building 14137	5.0	1	129.8	11.8	116.1	122.0	11.5	95	90 - 95	
12#	CF	2/3/06	Building 14137	4.0	1	126.8	12.1	113.1	122.0	11.5	93	90 - 95	
13#	CF	2/3/06	Building 14137	4.0	1	130.7	12.0	116.7	122.0	11.5	96	90 - 95	
14#	CF	2/3/06	Building 14137	3.0	1	130.0	10.9	117.3	122.0	11.5	96	90 - 95	
15#	CF	2/3/06	Building 14137	2.0	1	130.1	10.1	118.2	122.0	11.5	97	90 - 95	
16#	CF	2/3/06	Building 14137	1.0	1	130.4	10.6	117.9	122.0	11.5	97	90 - 95	
17*	CF	2/3/06	Building 14137	3.0	1	123.9	9.1	113.6	122.0	11.5	93	90 - 95	
18*	CF	2/7/06	Building 14131	5.0	1	132.4	10.6	119.7	122.0	11.5	98	90 - 95	
19*	CF	2/7/06	Building 14131	4.0	1	129.8	10.4	117.6	122.0	11.5	96	90 - 95	
20#	CF	2/7/06	Building 14131	3.0	1	131.8	10.5	119.3	122.0	11.5	98	90 - 95	
21#	CF	2/7/06	Building 14131	2.0	1	131.1	14.8	114.2	122.0	11.5	94	90 - 95	
22#	CF	2/7/06	Building 14131	2.0	1	133.8	12.1	119.4	122.0	11.5	98	90 - 95	
23#	CF	2/7/06	Building 14131	1.0	1	132.8	9.7	121.1	122.0	11.5	99	90 - 95	
24#	CF	2/7/06	Building 14131	0.0	1	133.5	10.1	121.3	122.0	11.5	99	90 - 95	
Average Relative Compaction =											96	95	

* Test performed by Nuclear Gauge method (ASTM D2922 and D5017)

* Test performed by Sand Cone method (ASTM D 1556)

Table 2 – Modified Proctor Density Test Results

Soil Type No.	Description	Dry Density (pcf)	Optimum Moisture Content (%)
1	Grayish Brown Clayey SAND	122.0	11.5

Table 3 – Expansion Index Test Results

Soil Type No.	Expansion Index	Expansion Index	Specification
1	Very Low	16	<20

APPENDIX E

NON-HAZARDOUS MATERIALS WASTE MANIFESTS

CANDELARIA ENVIRONMENTAL
BIOTREATMENT FACILITY
NON-HAZARDOUS MATERIALS HAULING MANIFEST

NO 43081

GENERATOR

NAME: AC/S ENVIRONMENTAL SECURITY (14 AREA)
ADDRESS: P.O. BOX 535008 PHONE NO. (760) 725-9774
CITY, STATE, ZIP: CAMP PENDLETON, CA 92035 APN: 3006-06

WASTE DESCRIPTION NON-HAZ SOIL GENERATING PROCESS UST LEAK
COMPONENTS OF WASTE (PPM) COMPONENTS OF WASTE (PPM)
DIESEL-IMPACTED SOIL UST SITES: 14131/14137/1441

PROPERTIES: SOLID YES
HANDLING INSTRUCTIONS: WEAR APPROPRIATE CLOTHING

GENERATOR CERTIFIES THAT THESE WASTES ARE RCRA NON-HAZARDOUS, AND CALIFORNIA NON-HAZARDOUS, BASED ON THE INFORMATION PROVIDED BY THE GENERATOR ON THE SOIL ACCEPTANCE APPLICATION AND THE ACCOMPANYING LABORATORY DATA

BY: [Signature] DATE: 1/3/06
Signature / Print or Type Full Name

HAULER

COMPANY NAME UST LEAK PHONE NO. 619 763 7143
ADDRESS 1151 Road SERVICE ORDER NO. _____
CITY, STATE, ZIP San Diego, CA 92106 PICK UP DATE 02/13/06
TRUCK TYPE: DUMP X ROLL OFF _____ OTHER _____

TRUCK LIC. # CD 114936 TRUCK ID # 766-14

DRIVER NAME Eric Trench TRAILER LIC. # GT 34036

DRIVER SIGNATURE [Signature] TRAILER ID # 766-14T

PROCESSOR

TIME LEFT JOB 11:50 LOAD # 15

JOB SITE REPRESENTATIVE Wmmy Bryant [Signature]
Name Signature

Deliver to facility Location:
CANDELARIA ENVIRONMENTAL
4001 Candelaria Lane
Anza, CA 92539
(951) 763-0129

Main office:
Phone: (619) 696-6207
FAX (619) 696-5117
24^{hr} Emergency (619) 696-6207

CANDELARIA ENVIRONMENTAL
BIOTREATMENT FACILITY
NON-HAZARDOUS MATERIALS HAULING MANIFEST

NO 43082

GENERATOR

NAME: AC/S ENVIRONMENTAL SECURITY (14 AREA)
ADDRESS: P.O. BOX 555008 PHONE NO. (760) 725-9774
CITY, STATE, ZIP: CAMP PENDLETON, CA 92055 APN: 2006-06

WASTE DESCRIPTION NON-HAZ SOIL GENERATING PROCESS UST LEAK
COMPONENTS OF WASTE (PPM) _____ COMPONENTS OF WASTE (PPM) _____
DIESEL-IMPACTED SOIL UST SITES: 14131/14137/1441

PROPERTIES: SOLID YES
HANDLING INSTRUCTIONS: WEAR APPROPRIATE CLOTHING

GENERATOR CERTIFIES THAT THESE WASTES ARE RCRA NON-HAZARDOUS, AND CALIFORNIA NON-HAZARDOUS, BASED ON THE INFORMATION PROVIDED BY THE GENERATOR ON THE SOIL ACCEPTANCE APPLICATION AND THE ACCOMPANYING LABORATORY DATA

BY: [Signature] DATE: 12/15/01
Signature / Print or Type Full Name

HAULER

COMPANY NAME WEST COAST PHONE NO. 760-725-9774
ADDRESS 3000 S. GATEWAY SERVICE ORDER NO. _____
CITY, STATE, ZIP CHICO, CA 95926 PICK UP DATE 12/15/01
TRUCK TYPE: DUMP ROLL OFF OTHER
TRUCK LIC. # 7T TRUCK ID # 101
DRIVER NAME JOHN TRAILER LIC. # 101
DRIVER SIGNATURE [Signature] TRAILER ID # 101

PROCESSOR

TIME LEFT JOB 12:15 PM LOAD # 16
JOB SITE REPRESENTATIVE Dylan Brown [Signature]
Name Signature

Deliver to facility Location:
CANDELARIA ENVIRONMENTAL
4001 Candelaria Lane
Anza, CA 92539
(951) 763-0129

Main office:
Phone: (619) 696-6207
FAX (619) 696-5117
24^{hr} Emergency (619) 696-6207

CANDELARIA ENVIRONMENTAL
BIOTREATMENT FACILITY
NON-HAZARDOUS MATERIALS HAULING MANIFEST

43083

GENERATOR

NAME: AC/S ENVIRONMENTAL SECURITY (14 AREA)
ADDRESS: P.O. BOX 553008 PHONE NO. (760) 725-9774
CITY, STATE, ZIP: CAMP PENDLETON, CA 92055 APN: 2006-06

WASTE DESCRIPTION NON-HAZ SOIL GENERATING PROCESS UST LEAK
COMPONENTS OF WASTE (PPM) _____ COMPONENTS OF WASTE (PPM) _____
DIESEL-IMPACTED SOIL UST SITES: 14131/14137/1441

PROPERTIES: SOLID YES
HANDLING INSTRUCTIONS: WEAR APPROPRIATE CLOTHING

GENERATOR CERTIFIES THAT THESE WASTES ARE RCRA NON-HAZARDOUS, AND CALIFORNIA NON-HAZARDOUS, BASED ON THE INFORMATION PROVIDED BY THE GENERATOR ON THE SOIL ACCEPTANCE APPLICATION AND THE ACCOMPANYING LABORATORY DATA

BY: [Signature] DATE: 13 Feb 2006
Signature / Print or Type Full Name

HAULER

COMPANY NAME Roberts Trucking PHONE NO. 858 342 7741
ADDRESS San Diego, CA SERVICE ORDER NO. _____
CITY, STATE, ZIP San Diego, CA PICK UP DATE 02/13/06
TRUCK TYPE: DUMP ROLL OFF OTHER

TRUCK LIC. # 1P74802 TRUCK ID # 11X1

DRIVER NAME Walter Padilla TRAILER LIC. # 912345

DRIVER SIGNATURE [Signature] TRAILER ID #

PROCESSOR

TIME LEFT JOB 1250 LOAD # 17

JOB SITE REPRESENTATIVE Walter Padilla [Signature]
Name Signature

Deliver to facility Location:
CANDELARIA ENVIRONMENTAL
4001 Candelaria Lane
Anza, CA 92539
(951) 763-0129

Main office:
Phone: (619) 696-6207
FAX (619) 696-5117
24^{hr} Emergency (619) 696-6207

CANDELARIA ENVIRONMENTAL
BIOTREATMENT FACILITY
NON-HAZARDOUS MATERIALS HAULING MANIFEST

43084

GENERATOR

NAME: AC/S ENVIRONMENTAL SECURITY (14 AREA)
ADDRESS: P.O. BOX 555008 PHONE NO. (760) 725-9774
CITY, STATE, ZIP: CAMP PENDLETON, CA 92055 APN: 2006-06

WASTE DESCRIPTION NON-HAZ SOIL GENERATING PROCESS UST LEAK
COMPONENTS OF WASTE (PPM) _____ COMPONENTS OF WASTE (PPM) _____
DIESEL-IMPACTED SOIL UST SITES: 14131/14137/1441

PROPERTIES: SOLID YES
HANDLING INSTRUCTIONS: WEAR APPROPRIATE CLOTHING

GENERATOR CERTIFIES THAT THESE WASTES ARE RCRA NON-HAZARDOUS, AND CALIFORNIA NON-HAZARDOUS, BASED ON THE INFORMATION PROVIDED BY THE GENERATOR ON THE SOIL ACCEPTANCE APPLICATION AND THE ACCOMPANYING LABORATORY DATA

BY: _____ DATE: _____
Signature / Print or Type Full Name

HAULER

COMPANY NAME Richard Juster PHONE NO. 619-318-7076
ADDRESS 790 Motor Ave SERVICE ORDER NO. _____
CITY, STATE, ZIP _____ PICK UP DATE 02/13/06
TRUCK TYPE: DUMP X ROLL OFF _____ OTHER X

TRUCK LIC. # 711173028 TRUCK ID # JT-1

DRIVER NAME Richard Juster TRAILER LIC. # 4669684

DRIVER SIGNATURE [Signature] TRAILER ID # JT 1 R

PROCESSOR

TIME LEFT JOB 1305 LOAD # 18

JOB SITE REPRESENTATIVE Wendy Bryant [Signature]
Name Signature

Deliver to facility Location:
CANDELARIA ENVIRONMENTAL
4001 Candelaria Lane
Anza, CA 92539
(951) 763-0129

Main office:
Phone: (619) 696-6207
FAX (619) 696-5117
24^{hr} Emergency (619) 696-6207

CANDELARIA ENVIRONMENTAL
BIOTREATMENT FACILITY
NON-HAZARDOUS MATERIALS HAULING MANIFEST

43085

GENERATOR

NAME: AC/S ENVIRONMENTAL SECURITY (14 AREA)
ADDRESS: P.O. BOX 555008 PHONE NO. (760) 725-9774
CITY, STATE, ZIP: CAMP PENDLETON, CA 92053 APN: 2006-06

WASTE DESCRIPTION: NON-HAZ SOIL GENERATING PROCESS: UST LEAK
COMPONENTS OF WASTE (PPM):
DIESEL-IMPACTED SOIL COMPONENTS OF WASTE (PPM):
UST SITES: 14131/14137/1441

PROPERTIES: SOLID YES
HANDLING INSTRUCTIONS: WEAR APPROPRIATE CLOTHING

GENERATOR CERTIFIES THAT THESE WASTES ARE RCRA NON-HAZARDOUS, AND CALIFORNIA NON-
HAZARDOUS, BASED ON THE INFORMATION PROVIDED BY THE GENERATOR ON THE SOIL ACCEPTANCE
APPLICATION AND THE ACCOMPANYING LABORATORY DATA

BY: [Signature] DATE: 1-13-06
Signature / Print or Type Full Name

HAULER

COMPANY NAME: West Coast PHONE NO. 619 443-4200
ADDRESS: PO Box 1521 SERVICE ORDER NO.
CITY, STATE, ZIP: Lakeside CA PICK UP DATE: 2-13-06
TRUCK TYPE: DUMP X ROLL OFF OTHER

TRUCK LIC. # 9A81401 TRUCK ID # 1X
DRIVER NAME: Jeff R. Roberts TRAILER LIC. # 1VT4225
DRIVER SIGNATURE: [Signature] TRAILER ID # 1XT

PROCESSOR

TIME LEFT JOB: 1320 LOAD # 19
JOB SITE REPRESENTATIVE: Wendy Bryant
Name: Wendy Bryant Signature: [Signature]

Deliver to facility Location:
CANDELARIA ENVIRONMENTAL
4001 Candelaria Lane
Anza, CA 92539
(951) 763-0129

Main office:
Phone: (619) 696-6207
FAX (619) 696-5117
24^{hr} Emergency (619) 696-6207

CANDELARIA ENVIRONMENTAL
BIOTREATMENT FACILITY
NON-HAZARDOUS MATERIALS HAULING MANIFEST

NC 43086

GENERATOR

NAME: AC/S ENVIRONMENTAL SECURITY (14 AREA)
ADDRESS: P.O. BOX 555008 PHONE NO. (760) 725-9774
CITY, STATE, ZIP: CAMP PENDLETON, CA 92055 APN: 2006-06

WASTE DESCRIPTION NON-HAZ SOIL GENERATING PROCESS UST LEAK
COMPONENTS OF WASTE (PPM) _____ COMPONENTS OF WASTE (PPM) _____
DIESEL-IMPACTED SOIL UST SITES: 14131/14137/1441

PROPERTIES: SOLID YES
HANDLING INSTRUCTIONS: WEAR APPROPRIATE CLOTHING

GENERATOR CERTIFIES THAT THESE WASTES ARE RCRA NON-HAZARDOUS, AND CALIFORNIA NON-HAZARDOUS, BASED ON THE INFORMATION PROVIDED BY THE GENERATOR ON THE SOIL ACCEPTANCE APPLICATION AND THE ACCOMPANYING LABORATORY DATA

BY: [Signature] DATE: 12/13/06
Signature / Print or Type Full Name

HAULER

COMPANY NAME SK PHONE NO. (619) 250-6167
ADDRESS PO Box 1521 SERVICE ORDER NO. _____
CITY, STATE, ZIP Lakeside, CA PICK UP DATE 02/13/06
TRUCK TYPE: DUMP ☒ ROLL OFF _____ OTHER _____
TRUCK LIC. # 54-50116 TRUCK ID # 143
DRIVER NAME Shawn Lynde TRAILER LIC. # 141411302
DRIVER SIGNATURE [Signature] TRAILER ID # SK 211

PROCESSOR

TIME LEFT JOB 1335 LOAD # 20

JOB SITE REPRESENTATIVE Wendy Bryant [Signature]
Name Signature

Deliver to facility Location:
CANDELARIA ENVIRONMENTAL
4001 Candelaria Lane
Anza, CA 92539
(951) 763-0129

Main office:
Phone: (619) 696-6207
FAX (619) 696-5117
24^{hr} Emergency (619) 696-6207

CANDELARIA ENVIRONMENTAL
BIOTREATMENT FACILITY
NON-HAZARDOUS MATERIALS HAULING MANIFEST

122 43087

GENERATOR

NAME: AC/S ENVIRONMENTAL SECURITY (14 AREA)
ADDRESS: P.O. BOX 555008 PHONE NO. (760) 725-9774
CITY, STATE, ZIP: CAMP PENDLETON, CA 92055 APN: 2006-06

WASTE DESCRIPTION NON-HAZ SOIL GENERATING PROCESS UST LEAK
COMPONENTS OF WASTE (PPM) _____ COMPONENTS OF WASTE (PPM) _____
DIESEL-IMPACTED SOIL UST SITES: 14131/14137/1441

PROPERTIES: SOLID YES
HANDLING INSTRUCTIONS: WEAR APPROPRIATE CLOTHING

GENERATOR CERTIFIES THAT THESE WASTES ARE RCRA NON-HAZARDOUS, AND CALIFORNIA NON-HAZARDOUS, BASED ON THE INFORMATION PROVIDED BY THE GENERATOR ON THE SOIL ACCEPTANCE APPLICATION AND THE ACCOMPANYING LABORATORY DATA

BY: _____ DATE: 1/31/06
Signature / Print or Type Full Name

HAULER

COMPANY NAME Ward Bryant Inc PHONE NO. 619-742-4700
ADDRESS 1144 E SERVICE ORDER NO. _____
CITY, STATE, ZIP Escondido CA PICK UP DATE 2-13-06
TRUCK TYPE: DUMP 7 ROLL OFF _____ OTHER _____
TRUCK LIC. # CP46011 TRUCK ID # 41237
DRIVER NAME Tim TRAILER LIC. # 6T65954
DRIVER SIGNATURE _____ TRAILER ID # 117-27T

PROCESSOR

TIME LEFT JOB 1345 LOAD # 21
JOB SITE REPRESENTATIVE Ward Bryant Ward Bryant
Name Signature

Deliver to facility Location:
CANDELARIA ENVIRONMENTAL
4001 Candelaria Lane
Anza, CA 92539
(951) 763-0129

Main office:
Phone: (619) 696-6207
FAX (619) 696-5117
24^{hr} Emergency (619) 696-6207

CANDELARIA ENVIRONMENTAL
BIOTREATMENT FACILITY
NON-HAZARDOUS MATERIALS HAULING MANIFEST

112 43088

GENERATOR

NAME: AC/S ENVIRONMENTAL SECURITY (14 AREA)
ADDRESS: P.O. BOX 555008 PHONE NO. (760) 725-9774
CITY, STATE, ZIP: CAMP PENDLETON, CA 92055 APN: 2006-06

WASTE DESCRIPTION NON-HAZ SOIL GENERATING PROCESS UST LEAK
COMPONENTS OF WASTE (PPM) _____ COMPONENTS OF WASTE (PPM) _____
DIESEL-IMPACTED SOIL UST SITES: 14131/14137/1441

PROPERTIES: SOLID YES
HANDLING INSTRUCTIONS: WEAR APPROPRIATE CLOTHING

GENERATOR CERTIFIES THAT THESE WASTES ARE RCRA NON-HAZARDOUS, AND CALIFORNIA NON-
HAZARDOUS, BASED ON THE INFORMATION PROVIDED BY THE GENERATOR ON THE SOIL ACCEPTANCE
APPLICATION AND THE ACCOMPANYING LABORATORY DATA

BY: _____ DATE: _____
Signature / Print or Type Full Name

HAULER

COMPANY NAME Security Services PHONE NO. 760 725 9388
ADDRESS _____ SERVICE ORDER NO. _____
CITY, STATE, ZIP _____ PICK UP DATE _____
TRUCK TYPE: DUMP _____ ROLL OFF _____ OTHER _____

TRUCK LIC. # 7 4 74 TRUCK ID # _____

DRIVER NAME Wendy Bryant TRAILER LIC. # 4141-109

DRIVER SIGNATURE _____ TRAILER ID # _____

PROCESSOR

TIME LEFT JOB 1420 LOAD # 22 Last Load

JOB SITE REPRESENTATIVE Wendy Bryant Wendy Bryant
Name Signature

Deliver to facility Location:
CANDELARIA ENVIRONMENTAL
4001 Candelaria Lane
Anza, CA 92539
(951) 763-0129

Main office:
Phone: (619) 696-6207
FAX (619) 696-5117
24^{hr} Emergency (619) 696-6207

MEMORANDUM

TO: CANDELARIA ENVIRONMENTAL COMPANY (CEC)

FROM: AC/S Environmental Security
COMPANY: MCB- Camp Pendleton
(760) 725-9774

SUBJECT: SELF CERTIFICATION STATEMENT

PROJECT: Marine Corps Base (MCB)
Sites 14131/14137/1441
MCB-Camp Pendleton, CA.
(760) 725-9774

Consistent with California Code of Regulations (CCR) Title 22 and the US EPA 40 Code of Federal Regulations (CFR) requirements and policies we have obtained representative soil samples from the above referenced project to classify the hydrocarbon contaminated soil as Resource Conservation and Recovery (RCRA) Non-Hazardous and California Non-Hazardous.

Based on our best knowledge the site history is as follows:

Source of Contamination:	Leaking USTs
Type of Contamination:	Diesel
Total Volume of Material (Estimated):	700 Tons (475 CY)

On the basis of the site history information and the laboratory tests results submitted with the CEC Soil Acceptance Application and as summarized on the attached Soil Profile Form, we certify the project soils as RCRA Non-Hazardous and California Non-Hazardous. As the generator we will maintain this record for review as required for the permitted handling consistent with CCR Title 22 and 26.

Margo Williams
Signature

MCB Pendleton
Company

Margo Williams
Name (Print)

1/30/06
Date

SOIL PROFILE FORM

PROJECT: Marine Corps Base, Camp Pendleton, CA (UST Site ~~1404~~ ^{UB 217106} 1441, 14131, 14137)
 GENERATOR: AC/S Environmental Security-P.O. Box 555008, Camp Pendleton, CA.

CHEMICAL CHARACTERISTICS

(Based on laboratory analytical data submitted with CEC Soil Acceptance Application)

TOTAL NUMBER OF SAMPLES TESTED:

174

NT = Not Tested
 ND = Non Detect
 NA = Not Applicable

ANALYTICAL METHOD		MINIMUM	MAXIMUM	UNITS
TRPH		NA		mg/kg
TPH-E	Jet Fuel	ND	<10	
	Diesel	ND	10000	mg/kg
	Oil	ND	320	mg/kg
	gas	ND	300	
EPA 8020:				
	BENZENE	ND	<0.005	mg/kg
	TOLUENE	ND	0.091	mg/kg
	ETHYLBENZENE	ND	0.19	mg/kg
	XYLENES	ND	0.4	mg/kg
LEAD:				
	TTLC	NA		mg/kg
	STLC	NA		mg/l
	ORGANIC	NA		mg/kg
OTHER:	VOCs	ND	<Reg. Levels	mg/kg

Will this material pass the EP Paints Tests for Sludge/Solids Designation?
 (Is the material in a solid state, no free flowing liquids?)

YES

pH: 7.66 to 7.73

FLASHPOINT: NT

REACTIVITY: NT

CEC ACCEPTANCE #: _____

2000-08